

Report on

**Fungi from the Columbia Basin Deposited in the
University of Michigan Herbarium**

By:

Robert Fogel
University of Michigan Herbarium

December 7, 1994

Interior Columbia Basin
Ecosystem Management Project
Science Integration Team - Terrestrial Staff

**Fungi from the Columbia Basin deposited in the University of Michigan Herbarium
(MICH)**

ORDER NUMBER: 43-0E00-4-9227

Robert Fogel

University of Michigan Herbarium, North University Building, AM Arbor, MI 48109-
1057

Summary

Field books indicate that the University of Michigan Fungus Herbarium contains approximately 26,313 collections from the Columbia Basin. Time and budget restraints have only resulted in data from 15,000 of the approximately 280,000 collections being entered in computer databases. Lists of common species and species of special concern from the Columbia Basin were therefore compiled from the preexisting University of Michigan **Fungal** Herbarium hypogeous and type databases, supplemented with new data entered from representatives of species described as new from the general collection. The resulting Columbia Basin database contained information from 3848 collections, including 392 type collections.

The biology and ecology of hypogeous fungi is discussed. Data from other **fungal** groups is summarized in appendices for other contractors.

The list of major, or common fungi, contains 67 species and **infraspecies** (subspecies, variety, form), including 38 hypogeous **taxa**. Common is defined as 10 or more occurrences (localities). The list of species of special concern is longer containing 414 **taxa**, including 125 hypogeous **taxa**. The Columbia Basin hypogeous fungus flora shows a stronger **affinity** to the Westside Pacific Northwest flora than to the Great Basin flora.

Recommendations are made for expanding and improving collections databases. Entry of data into computer databases needs to be expedited. Most historical data is inaccessible because computer databases are incomplete. Improved communication between resource managers, conservationists and mycologists about types of data needed and agreement on standardized data is essential before new surveys are conducted.

Introduction

The University of Michigan Herbarium one of the five largest in North America, has holdings of all groups of plants, algae, and fungi. The **fungal** herbarium consists of approximately 280,000 collections. Our holdings of Columbia Basin fungi are dominated by specimens from Idaho, but include collections **from** the Mt. Hood area, Mt. Rainier, Central Oregon, and Washington State bordering the Idaho panhandle. The earliest collections date from 1935. A check of field books indicates that we have at least 19,015 collections made by Alexander Smith from the Columbia Basin, 7,298 collections made by Ellen Trueblood (primarily from Owyhee County, Idaho), and small numbers made by Robert Fogel and others. More undoubtedly exist because of collecting in areas, e.g., Mt. Hood, Mt. Rainier, that straddle the border of the Columbia Basin.

It is impossible to provide a complete list, or even a summary, of all of the MICH collections from the Columbia Basin because a database containing collections information has just been started (15,000 records) and the resources available to prepare this report in the short time allowed. In order to retrieve information on all of the undatabased collections, thousands of boxes would have to be located, opened, and data transcribed from labels. The only group of fungi completely databased is the hypogeous fungi (truffles and false-truffles). To gain some understanding of the information available at MICH, we decided that in addition to compiling information on hypogeous fungi available in the collections database, we would concentrate on species originally described from the Columbia Basin (type specimens). The type specimens (name bearing, or standards for species names) are housed separately **from** other collections and had been databased, but this type database lacked locality and habitat/host data. The type collections from the Columbia Basin were pulled and fields in the database were updated. This search produced 392 MICH type specimens of **taxa** (species, forms, or varieties) originally described as new **from** the Columbia Basin (Appendix 1). Collections in the general collection of the species originally described from the Columbia Basin were then

segregated (3848 collections) and label data entered in the collections database. This strategy was adopted because we felt that there was a good chance that many of the species described as new from the Columbia Basin would be “rare” (less than 10 occurrences), or poorly known due to the lack of collecting in the area and the relatively short time since their publication. Only data on hypogeous fungi (truffles and false truffles) are discussed below. Information on other groups is summarized in Appendices 3, 4, and 5 along with that for hypogeous fungi for the benefit of the other contractors and for further discussion by the group.

One of the problems in using historical collections is that in most instances only general information is available, not the detailed information requested, especially habitat and locality coordinates. Collectors before 1940 were interested in general patterns and labels often include only the season, month(s) or even year of collection. Later collections include day. Similarly, mycologists have been interested in associations between fungus and potential hosts or substrates because it was felt that these associations were better (more specific) predictors of fungal locations than their habitats, vegetation types, or ecosystems. For instance, Douglas-fir is a member of several vegetation types, but Barssia oregonensis is always associated with Douglas-fir irrespective (?) of vegetation type. Now that some of these specific associations between fungi and hosts have been ascertained, mycologists are becoming interested in ecosystem age and type. An impediment to mycologists including habitat descriptors has been the lack of easy to use, agreed upon ecosystem, or vegetation, classifications. Mycologists have not included coordinates (Latitude/Longitude or UTM) in location descriptions for the same reason. Exact coordinates are difficult to reconstruct from maps given the roaming involved in collecting and the time involved in locating positions on a map. It is only the advent of relatively inexpensive Global Positioning Systems that has allowed an increasing number of mycologists to easily incorporate accurate coordinates in locality data.

Hypogeous Fungi

BACKGROUND

Hypogeous fungi (truffles and false truffles) are a taxonomically artificial group composed of **taxa** from a number of different lineages of Ascomycetes, Basidiomycetes, and even a few species of Zygomycetes. Each of the many separate lineages typically consists of **taxa** grading in fruitbody morphology from that only slightly reduced **from** an ancestor producing **fruitbodies** aboveground through morphological intermediates to reduced species producing more or less globose, closed f&bodies. The basidiomycete lineages typically contain species producing **fruitbodies** grading from mushroom-like through non-emergent intermediate forms, the cap does not fully open, to globose, fully closed false-truffles that lack stems (Fig 1). The ascomycete lineages are similar but start with a cup-shaped fruitbody, grade through complex folded intermediate morphologies to solid, globose, fully closed **fruitbodies** or truffles. Parallel to the reduction in morphology is a loss of forcible spore discharge to the atmosphere and symbiotic dispersal in truffles and **false-truffles**. The convergence by hypogeous **fungi** on a similar gross morphology is hypothesized to be in response to selection for reduced water loss and increased **frost** protection (Fig. 1, Wells 1983). The spherical shape of truffles and false truffles and enclosure of fertile tissues by a protective covering reduces water loss considerably compared to the loss from gilled and cup fungi with much larger surface area to volume ratios. The production of truffles and false truffles in the mineral soil beneath the forest floor also reduces water loss both because the moisture content of the soil atmosphere is higher than above ground and

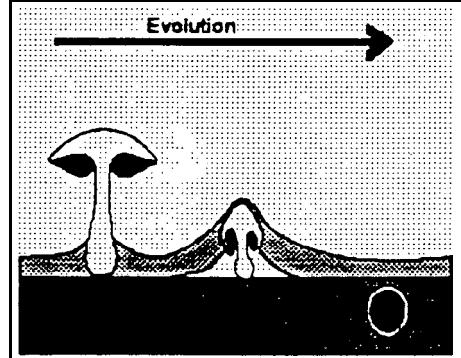


Fig. 1. Model for evolution of false truffles. Fruitbodies of a mushroom, secotioid intermediate, and false-truffle shown in cross section. Spore producing tissues shaded black.

because the forest floor acts as a mulch. As a mulch the forest floor also provides some frost protection.

Factors affecting biogeography of hypogeous fungi

KEY FUNCTIONS

Most hypogeous fungi are believed to form obligate, mutualistic associations (ectomycorrhizae) for photosynthates with many tree species. Trees forming ectomycorrhizae are dependent on fungi, including but not restricted to hypogeous fungi, for their mineral nutrition. A few taxa, e.g., Sclerogaster xerophila, Trappea spp., may be decomposers based on their association with organic debris. Based on “constant association” with specific trees (Table 1), some hypogeous fungi are felt to be obligately associated with a single tree species, and others with several genera of trees in the same family. Some hypogeous fungi are found in association with both conifers and hardwoods.

Factors determining tree distribution in turn affect distribution of hypogeous fungi dependent on the affected trees. We noticed during our survey of hypogeous fungi in the Great Basin that drought and the associated beetle infestations and fire, open pit mining (especially roads and tailings associated with mines), and disturbance created by installation of electronic facilities are reducing tree populations. The effects are especially noticeable in small, isolated mountain ranges with very small populations of trees. Installation of an array of electronic relay towers, for instance, can have a devastating effect on small populations of bristlecone pine or whitebark pine perched on mountain tops (e.g., Frisco and Highland Peaks, NV).

Table 1. Reported associations between trees and hypogeous fungi

Tree Associate	Hypogeous Fungus Associate
<u>Abies</u> species	<u>Thaxteroaaster pingue</u> ¹
Douglas-fir	<u>Barssia oregonensis</u> ¹ <u>Fischerula subcaulis</u> ¹ <u>Genabea cerebriformis</u> ² <u>Truncocolumella citrina</u> ¹ <u>Tuber eibbosum</u> ¹
Lodgepole pine	<u>Chamonixia brevicolumna</u> ² <u>Gomphonaster leucosarx</u> ¹
Ponderosa pine	<u>Sedecula pulvinata</u> ²
Alder species	<u>Alpova diplophloeus</u> ¹
Two-three needled <u>Pinus</u> species	<u>Brauniellula albipes</u> ¹
Pinaceae (pines, Douglas-fir)	<u>Rhizopogon</u> species ¹

¹Castellano et al. 1989; ² Fogel pers. obs.

Another symbiosis between hypogeous fungi and mycovores, primarily rodents, also interacts with tree distribution to determine distribution of hypogeous fungi. This symbiotic association is common involving a large number of differerit rodents (Fogel and Trappe 1985, Maser et al 1978). Spore dispersal of hypogeous fungi producing truffles and false truffles is restricted by their fruitbodies almost always being produced below ground coupled with their inability to discharge spores to the atmosphere, and the spore producing tissues often being enclosed within persistent sterile tissue. Nearly all hypogeous fungi producing fruitbodies intermediate or fully reduced in morphology also lack mechanisms for spore discharge to the atmosphere. The mycovores benefit by being able to obtain nourishment from the sterile tissues of the fruitbody.

DISPERSAL BARRIERS

Barriers to movement, real or behavioral, is one of the important factors influencing rodent distribution and hence spore dispersal of truffles and false-truffles. Brown (1971) has reported that boreal mammals are not only restricted to mountain tops in the Great Basin, but are further restricted to specific vegetation zones. Cazares and Trappe (1994) in contrast have reported that rodent dispersal of fungal spores into open areas adjacent to forest stands makes establishment of ectomycorrhizal seedlings possible.

HISTORY

History is also important in determining the distribution of trees, rodents and hypogeous fungi. The best example is the Great Basin, an area of 714,854 square kilometers as defined by Cronquist et al. (1972). The Great Basin contains a large number of north-south trending fault block mountain ranges separated by dry pluvial lake bottoms or basins (Fig. 2). The lower ranges are covered with juniper-pinen forests with disjunct pockets of ponderosa pine, mountain mahogany, and gambel's oak. Some of the higher ranges have disjunct stands of trembling aspen, white fir, Douglas-fir, limber pine, white bark pine, willow, subalpine fir, bristlecone pine, and englemann spruce. Wells (1983) provides a theoretical framework explaining present conifer distributions based on events during and following glaciation in the Pleistocene. His basic scenario for the region (Fig. 3) is that during glaciation forest zones were displaced downward and habitats for lower



Fig. 2. Intermountain Region with the high Central Plateau (1820 m contour) shaded gray. The bold black line outlines the Great Basin as defined by Cronquist et al (1972). Routes for conifer and hypogeous fungus re-invasion indicated by bold arrows.

montane trees were buried beneath pluvial lakes, e.g., Lakes Bonneville and Lahontan,

leading to the local extinction of lower montane trees. Subsequent warming in the post-pluvial period permitted upward migration of the upper montane and subalpine tree zones. As the pluvial lake levels dropped, migration corridors were opened for lower montane species to re-invade from refugia in the Wasatch-Uinta Mountain complex and from northern Arizona. From this scenario, the mix of trees occurring at present on any given mountain range and their associated hypogeous fungi derives from four sources:

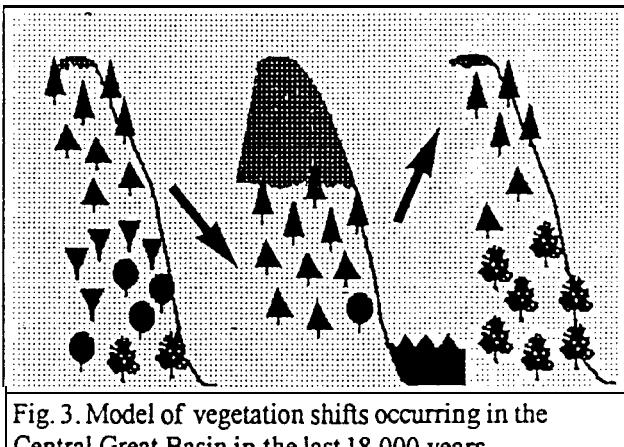


Fig. 3. Model of vegetation shifts occurring in the Central Great Basin in the last 18,000 years.

- 1) Relict populations of subalpine species and their associated hypogeous fungi, e.g., engelmann spruce and bristlecone pine, that survived glaciation and flooding.
- 2) Lower montane species re-invading by seed shadow dispersal from glacial refugia, e.g., white fir, Douglas-fir, ponderosa pine. Dispersal of hypogeous fungi restricted.
- 3) Populations of rapidly invading lower montane species founded by seed caching birds, e.g., white fir stand in Ruby Mountains, Nevada (fide Wells 1983). No dispersal of hypogeous fungi.
- 4) Lower montane species invading via seed caching rodents, a mechanism not discussed by Wells (1983). Dispersal of hypogeous fungi restricted.

Glacial history may also have had an impact on the composition of the “forest. islands” in the Columbia Basin, i.e., Owyhee Mts, ID; South Hills, ID; Cache Pk Range, ID; South Mountain, ID; Black Pine Mountains, ID; Jarbridge Mts, NV; Steens Mts, OR; and Raft River Mts, UT.

The source of planted trees may govern the distribution of hypogeous fungi. If seedlings from a nursery bereft of ectomycorrhizae of hypogeous fungi are planted in sites lacking inoculum of hypogeous fungi, the plantation may lack hypogeous fungi altogether or have a very depauperate flora. Once introduced however, hypogeous fungi may persist for decades. I have collected Geopora cooper-i and Barssia oregonensis under a small stand of 13 Douglas-firs in Santa Rosa Mountains, NV. Douglas-fir is not reported for Humboldt County, NV and the Santa Rosa trees are the remnant of a plantation established by the Civilian Conservation Corps in the 1930s. The two hypogeous fungi were undoubtedly introduced with the Douglas-fir seedlings and have persisted for ca. 60 years.

Key Environmental Factors

Identifying areas that have received adequate precipitation is one of the most important factors in designing a strategy for collecting hypogeous fungi. Precipitation in the Columbia Basin during the growing season is most often produced by thunderstorms and consequently varies substantially in intensity, time and space. Mountain ranges in the same area may have different soil moisture levels depending on snow pack, storm tracks, aspect, surface water, and soil texture. Most of the extant collections of hypogeous fungi from the Columbia Basin were made in June, July or August. I would expect hypogeous fungi to fruit for a longer period at lower elevations, perhaps May through October as collections are made as late as November or December near Flagstaff, AZ in response to warm periods. Some of these late collections result from a few hypogeous fungi that produce tough persistent fruitbodies, i.e., Elaphomycetes, or that mature late, e.g., Tuber. The effect of the interaction between temperature and moisture on production of truffles and false-truffles in western Oregon is shown in Fogel(1976). Hunt and Trappe (1987) and Louma et al (1991) also show that production of truffles and false-truffles given favorable conditions may be species specific. Some false-truffles only fruit during the Fall

in Western Oregon, e.g., Truncocolumella citrina, some Spring, e.g., Barssia oregonensis, Genabea cerebriformis, Genea harknessii, while some fruit whenever moisture and temperature are favorable, e.g., Hysterangium crassum, Hymenogaster parksii. In the Columbia Basin and Great Basin the fruiting pattern of species may vary from that in Western Oregon. Barssia oregonensis fruits from March through July in western Oregon (Fogel 1976). In the Columbia and Great Basins, B. oregonensis fruits from June to September.

Special Habitats

Most hypogeous fungi generally fruit just below the litter layer in forests. A few species are found in special microhabitats. Hydnotrya michaelis, H. variiformis, and Rhizopogon cokeri are often found in disintegrating logs or in soil containing, fragments of rotten wood. Many hypogeous fungi fruit in soil banks or at the base of slopes where soil moisture is presumably better or at the edges of paths where soil is compacted.

Disjunct forests on small isolated mountain ranges may also constitute a special habitat. One of the best examples is the Raft River Mountains, UT. The map of the Columbia Basin boundary excludes this range, but it should be included because the Raft River drains into the Snake River near Burley, ID. The Jarbidge Mountains, included in the Columbia Basin by the EEMP, are similar to the Raft River Mountains because the Jarbidge River drains into the Snake River after merging with the Bruneau River. It should be noted that Cronquist et al (1972) include all of Idaho south of the Snake River and west of Sublett, ID in the Great Basin. One of the interesting processes in disjunct forests is the shift from one tree associate to another. Barssia oregonensis and Genabea cerebriformis, common, obligate Douglas-fir associates in the Pacific Northwest, were collected under pinon pine along Clear Creek in the Raft River Mountains (Fogel 1992). Interestingly, Sclerogaster xeronhila, collected only under ponderosa pine in the Great Basin previously, was also found under pinon pine in the same drainage as the B.

oregonensis. Ponderosa pine does not occur in the Raft River Mountains, the nearest ponderosa pine stand is 241 km distant, and Douglas-fir does not occur in the same drainage. Such host shifts are significant because they may be an important first step in sympatric speciation as host shifts are in parasites (Price 1980). The shifts may also provide evidence that the usual trees associated with these fungi may have become locally extinct.

Preferred ranee of Successional Stages

Locality data indicate that hypogeous fungi fruit in all successional stages of stands containing ectomycorrhizal trees. The earliest stage is represented by a Rhizopogon vulgaris collection from a bed of seedlings at the Bend, OR Forest Service Nursery. Numerous collections have been made from old-growth stands.

Only one comparison of the effect of succession on production of hypogeous fungi has been published. Louma et al (1991) report that in western Oregon Douglas-fir forests mesic mature (80-199 year-old) forests produce the highest biomass of hypogeous fungi, dry old-growth (\geq 200 year-old) the lowest. Some species differences were also noted. Leucogaster rubescens has peak biomass in dry old-growth forests, Leuophleps magnata biomass is highest in forests other than old-growth, and Rhizopogon vinicolor biomass is even across forests.

Columbia Basin hypogeous fungi

Literature Review

Direct references to hypogeous fungi of the Columbia Basin are few. Only two publications containing a reference to hypogeous fungi of the Columbia Basin or Idaho in the title were identified (Table 2).

Table 2. Reported Hypogeous fungi of the Columbia Basin

Hypogeous Fungus	Reference
<u>Barresia nensis</u>	Hawker (1968)
<u>Choromvces (Piersonia) alveolatus</u>	Hawker (1968)
<u>Elauhomvces granulatus</u>	Hawker (1968), Tylutki (1979)
<u>Gastroboletus turbinatus</u>	Tylutki (1987)
<u>Geonora cooperi</u>	Hawker (1968), Tylutki (1979)
<u>Hvdnotryva cerebriformis</u>	Hawker (1968), Tylutki (1979)
<u>Tuberculif o m i c u m</u>	Hawker (1968)

Most lists of species of hypogeous fungi from the Columbia Basin are buried in taxonomic monographs or publications describing new species. The MICH type database makes it possible to identify references to descriptions of Columbia Basin species described as new (Appendix 2). Examination of the references cited in Appendix 2 should provide additional information on Columbia Basin fungi, but may not, as many of the A. H. Smith publications only list collections to State.

A number of publications by Fogel and his colleagues contain maps and county locations for hypogeous fungi, including Columbia Basin records (Fogel 1976, 1979, 1985, 1992a, 1992b; Fogel and Pacioni 1989; Fogel and Trappe 1985; Pacioni and Fogel 1990). Miller and Trappe (1973) described a new genus, Gomphogaster, based on a specimen from Idaho. These species records are not listed here as they are included in Appendices 4 and 5.

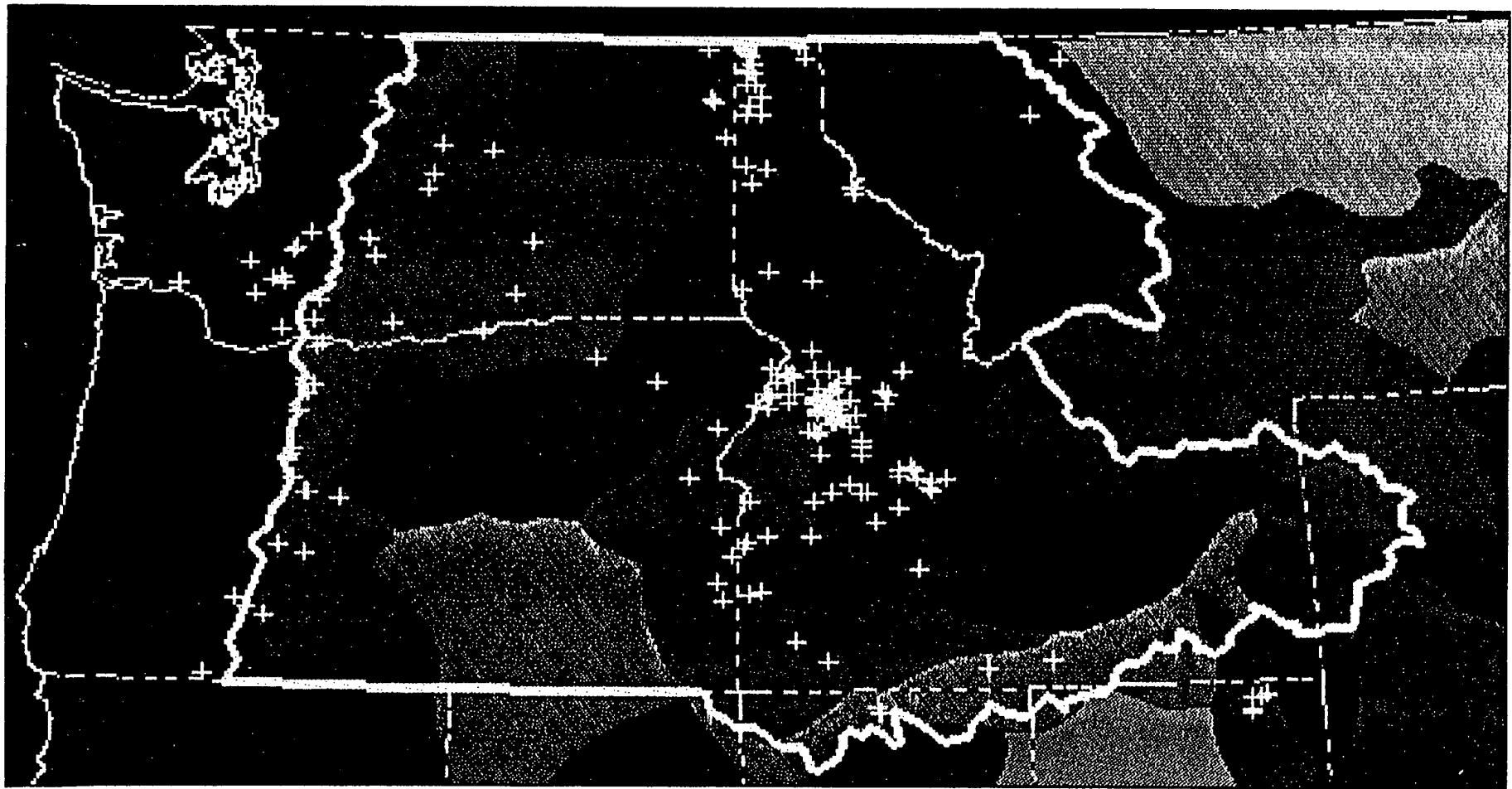
Biogeography

In general, based on the MICH collections examined, hypogeous fungi are found wherever suitable ectomycorrhizal associates are found in the Columbia Basin (Appendix 3, Fig. 4). Most of the MICH collections are from the McCall, ID area. Priest Lake, ID and Owyhee County, ID are represented to a lesser extent as are the Mt. Rainier and Mt. Hood vicinities. Fig. 4 shows all of the mappable fungus (including hypogeous fungi) localities, but seriously under represents the number of localities since the coordinates of many sites (especially in Owyhee County, ID; Malheur and Wasco Counties, OR; and Pierce and Lewis Counties, WA) could not be located on the maps available. About half of the 3848 collections studied lacked specific localities. The National Forest maps available for Oregon and Washington are marked with Section-Range-Township, but lack both UTM and Latitude-Longitude. Coordinates therefore could not be determined for GIS mapping.

The hypogeous flora appears to have a stronger affinity to the Pacific Northwest than to the Great Basin. A number of species common in western Oregon and Washington have been collected in Idaho, but not the Great Basin. Species showing the Pacific Northwest affiliation include: Leuconhagens magnata, Truncocolumella citrina, Brauniellula albipes, Thaxterogaster pingue, Gastroboletus turbinatus, Genabea cerebrifonnis, Rhizopogon vinicolor. Collections of Truncocolumella citrina and Barssia oregonensis indicate that the Owyhee Mountains, ID have been properly placed in the Columbia Basin in contrast to their inclusion the Great Basin by Cronquist et al. (1972). Similarly, collections of Genabea cerebriformis and Barssia oregonensis from the Raft River Mountains, UT support the hydrographic data for inclusion of this range in the Columbia Basin (EEMP) rather than the Great Basin.

Fig. 4. suggests that three of Bailey's Ecoregions lack fungi. In fact, fungi have been collected in all three Ecoregions. Collections from the High Lava Plains section (342H) could not be mapped because the locality data were insufficient to estimate

Fig. 4. Locations of mappable fungus locations in the Columbia Basin plotted on Bailey's Ecoregion Sections. Border of the Columbia Basin as defined by EEMP shown by bold white line.



coordinates. The MICH collections of hypogeous fungi from Northwestern Basin and Range Section (342B) are from the Great Basin (Pine Forest, Santa Rosa Ranges in Humboldt County, NV) rather than the Columbia Basin. MICH also has collections of hypogeous fungi from the Great Basin portion (Warner Mountains, CA) of the Modoc Plateau Section (M261G) rather than the Columbia Basin portion.

Two collections of mycorrhizal fungi, Rhizouoeon subcaerulescens and Chroogomphus pseudovinicolor, are undoubtedly misclassified as from grass cover types (SRM 300), but no possible tree associates are given on the collection labels.

Maior Species

Appendix 4 lists 67 common or major species and **infraspecies**, including 38 hypogeous species. Common is defined as more than 10 occurrences (different localities). For the most part the list contains species I would expect based on collecting west of the Cascades in the Pacific Northwest and in the Great Basin. I suspect the greater diversity of trees in Idaho and the **affinity** of many of the trees to the Pacific Northwest accounts for the closer affinity of the hypogeous flora to the Pacific Northwest. Genera commonly collected in the Columbia Basin, Pacific Northwest and Great Basin include: Gautieria, Geopora, Hymenoqaster, Hysterangium, Leucophleps, and Rhizopogon. Genera commonly found in the Columbia Basin and the **Pacific** Northwest, but not the Great Basin include: Brauniellula, Gastroboletus turbinatus, Rhizonogon vinicolor, Thaxterogaster pingue, and Truncocolumella citrina. Both Brauniellula and Thaxterogaster may not be present in the Great Basin because their tree associates, lodgepole pine and Abies lasiocarpa (now A. bifolia) are either not found, or rare, in the Great Basin. Elaphomvces and Leucogaster, common genera in the Columbia Basin are rare in the Great Basin. Mycolevis siccigleba is common in the Columbia Basin and the southern Colorado Rockies, but only represented by a single collection from the Great Basin. I was unable to ascertain how common Mycolevis is in the Pacific Northwest.

Geopora cooper-i f. gilkevae is listed as common despite few collections from the Columbia Basin because it is very common in the Great Basin and is widely distributed (Fogel 1992).

Species of Special Concern

Appendix 5 lists 4 14 species and **infrataxa** of special concern including 125 hypogeous fungi. Species of special concern are **defined as** those represented by fewer than 10 occurrences. There are more species of special concern than common species (Appendix 4). This disparity may reflect our strategy of searching the general collection for representatives of species originally described **from** the Columbia Basin. The relative length of the two lists may change as other species are added to the database. The number of species known **from** only the type collection is quite large and may reflect the lack of collecting in the area since the species were monographed. Another factor is the apparent concentration of A. H. Smith on restricting much of his collecting to monographs in preparation. The bulk of the collections of Idaho hypogeous fungi, for instance, are **from** three field seasons.

The list of species of special concern reflects an **affinity** to the Pacific Northwest, as do the major species, rather than to the Great Basin. The following genera containing species of special concern are known from the Pacific Northwest (PNW), but not the Columbia Basin: Arcangeliella (rare in PNW), Chamonixia, Choiromvces (rare in PNW), Destuntzia (rare in PNW), Gymnomvces, Macowanites (rare in PNW), Martellia (some species common in PNW), and Picoa. The following Columbia Basin species of special concern are listed as rare in the Record of Decision for the Westside (Anonymous 1994): Choiromvces aveolatus, Martellia fragrans, M. monticola, Rhizopogon evadens var. subalpinus, R. flavofibrillosus, R. inauinatus. The Westside ROD lists these Columbia Basin fungi as species to be protected Gastroboletus subalpinus, G. turbinatus (bolete with intermediate morphology common in Columbia Basin), Nivatogastrum nubigenum.

(puffball with intermediate morphology common in Columbia Basin), Rhizopogon atroviolaceus (common in Columbia Basin). Protogautieria lutea is apparently only represented by the type collection from Idaho.

Conclusions

Historical data, or collections data, only provide a first approximation of the fungi occurring in a region. The holdings of several institutions need to be examined to obtain all of the information available. To compile a complete list of hypogeous fungi from the Columbia Basin and obtain an estimate of their rarity from historical data, the **herbaria** at Oregon State University (M. Castellano, H. Gilkey and J. M. Trappe collections), Central Washington State University - Ellensburg (D. Hosford collections), New York Botanical Garden (S. M. Zeller collections) and perhaps the University of Washington, Virginia Polytechnic University (O. K. Miller, Jr. collections) or San Francisco State University (I-I. D. Theirs collections) would also have to be examined. The largest impediment to using historical data is the lack of computerization of many collections data due to restricted funding and relatively recent awareness of the utility of computer databases.

Most historical collections resulted from systematic, not ecological research, limiting the usefulness of the data for checklists. Until the advent of global positioning systems, it was difficult to calculate coordinates necessary for GIS maps. Mycologists have been more interested in possible obligate associations between **fungi** and hosts or substrates than ecosystem or vegetation types producing the fungi. Another impediment to the use of standardized habitat or ecosystem classifications has been the general lack of agreement **on classification schemes** (Redwood National Park has two!) and an unawareness on the part of mycologists of the utility of recording standardized ecological data. The importance and availability of standardized ecological data needs to be communicated to mycologists.

Agreement should also be reached on whether physiographic and/or political units are cited on labels. Most historical collections use political boundaries probably due to funding and the availability of outline maps. Physiographic units like the Columbia and Great Basins better reflect the history, climatic, and soils producing the species in an area, but check lists and lists of endangered species, for instance, are recorded by political unit. Despite being more biologically meaningful, there is no agreement on the boundaries of physiographic units. South central Oregon, inclusive of the Steens Mountains, for instance is included in the Columbia Basin as defined by the EEMP, but others include this area in the Great Basin.

Curators of mycological collections also need to develop some resources to provide **and/or** reconstruct data from historical collections needed by resource managers and conservationists. The first priority is to enter all label information into computer databases. Second, mycologists representing each group of fungi , e.g., mushrooms, hypogeous fungi, should agree upon and publish lists of accepted species names to reduce multiple entries resulting from unresolved synonymies. Third, coordinate data should be reconstructed for historical collections where possible. This might involve collectors returning to sites that produced numerous collections and using a global positioning system to record coordinates, or estimating coordinates by using scaled maps on a tablet digitizer. The precision of the coordinates should be entered in databases to aid users in determining the usefulness of the coordinates for a particular map. More error is acceptable for regional maps, for instance, than small areas like wilderness study areas.

More surveys are needed. Mycologists have, for the most part, not conducted **fungal** surveys in North America because the flora is poorly known. Mycologists concentrated on collecting for **systematics** research resulting in strongly biased collecting. When Dr. Smith was working on his monograph of Rhizopogon, for instance, he collected Rhizopogon and other hypogeous fungi he encountered to the near exclusion of other

fungi for three seasons. After finishing his monograph of Rhizopogon, he concentrated on collecting another group and only collected hypogeous fungi incidentally.

References

- Anonymous. 1994. Standards and guidelines for management of habitat for late-successional and old-growth forest related species within the range of the northern spotted owl. U.S. Gov. Printing Off., Washington DC.
- Brown J. H. 1971. Mammals on mountain tops: nonequilibrium insular biogeography. *Am. Nat.* 105:467-478.
- Castellano, M. A., J. M. Trappe, Z. Maser, and C. Mazer. 1989. Key to spores of the genera of hypogeous fungi of North Temperate forests. Mad River Press, Eureka, CA.
- Cazares, E. and J. M. Trappe. 1994. Spore dispersal of ectomycorrhizal fungi on a glacier forefront by mammal mycophagy. *Mycologia* 86:507-5 10.
- Cronquist, A, A H. Holmgren, N. H. Holmgren, and J. L. Reveal. 1972. Inter-mountain flora: vascular plants of the Intermountain West, U.S.A. Vol. 1. Hafner Press, New York.
- Fogel, R 1976a. Ecological studies of hypogeous fungi. II. Sporocarp phenology in a western Oregon Douglas-fir stand. *Canadian Journal of Botany* 54: 1152- 1162.
- Fogel, R 1976b. Notes on distribution-and spore ornamentation of Mycolevis siccigleba (Basidiomycetes, Cribbeaceae). *Mycologia* 68: 1097- 1103.
- Fogel, R. 1979. The genus Leucophelps (Basidiomycotina, Leucogastrales). *Canadian Journal of Botany* 57:1718-1728.
- Fogel, R. 1985. Studies on Hymenogaster (Basidiomycotina): A re-evaluation of the subgenus Dendrogaster. *Mycologia* 77:72-82.
- Fogel, R 1992a. Utility of spore length/width ratio in separating Geouora cooperi form cooperi and G. cooperi f. gilkeyae. *Mycologia* 84: 124-127.

- Fogel, R. 1992b. Evolutionary processes in truffles and false-truffles: Evidence from distribution of hypogeous fungi in the Great Basin, USA. *Micol. Veget. Medit.* 7: 13-30.
- Fogel, R., and G. Pacioni. 1989. Materials for a hypogeous mycoflora of the Great Basin and adjacent cordilleras of the western United States. *Mem. N.Y. Bot. Gard.* 49:119-128.
- Fogel, R., and J. M. Trappe. 1978. Fungus consumption (mycophagy) by small animals. *Northwest Science* 52: 1-3 1.
- Fogel, R., and J. M. Trappe. 1985. Studies on Hymenogaster (Basidiomycotina): Destuntzia, a new genus in the Hymenogastraceae (Basidiomycotina). *Mycologia* 77:732-742.
- Hawker, L. E. 1968. Hypogeous ascomycetes from Idaho. *J. Elisha Mitchell Sci. Soc.* 84:248-253.
- Hawker, L. E. 1969. A species of Hysterangium from Idaho attributed to *H. separabile*. *Mycologia* 61:115-119.
- Hunt, G. A. and J. M. Trappe. 1987. Seasonal hypogeous sporoacrp production in a western Oregon Douglas-fir stand. *Can. J. Bot.* 65:438-445.
- Luoma, D. L., R. E. Frenkel and J. M. Trappe 1991. Fruiting of hypogeous fungi in Oregon Douglas-fir forests: Seasonal and habitat variation. *Mycologia* 83:335-353.
- Maser, C., J. M. Trappe, and R. A. Nussbaum. 1978. Fungal-small mammal interrelationships with emphasis on Oregon coniferous forests. *Ecology* 59:799-809.
- Miller, O. K., Jr., and J. M. Trappe. 1973. A new gastroid genus related to Gomphidius. *Mycologia* 65:226-229.
- Pacioni, G. and R. Fogel 1990. Brauniellula crassitunicata, a new secotoid species of Gombidiaceae (Boletales, Basidiomycotina). *Mycologia* 82:6 17-621.

- Price, P. W. 1980. Evolutionary biology of parasites. Monogr. Pop. Biol. 15, Princeton Univ. Press, Princeton, NJ.
- Thiers, H. D. 1984. The secotioid syndrome. *Mycologia* 76:1-8.
- Trappe, J. M. 1962. Fungus associates of ecotrophic mycorrhizae. *Bot. Rev.* 28:538-606.
- Trappe, J. M. 1969. Mycorrhiza-forming ascomycetes. pp. 19-37. In: . Mycorrhizae. Ed. by E. Hacskaylo. USDA, For. Serv. Misc. Publ. 1189.
- Tylutki, E. E. 1979. Mushrooms of Idaho and the Pacific Northwest: Discomycetes. Univ. Press Idaho, Moscow
- Tylutki, E. E. 1987. Mushrooms of Idaho and the Pacific Northwest. Vol. 2. Non-gilled hymenomycetes. Univ. Idaho Press, Moscow
- Wells, P. V. 1983. Paleobiogeography of montane islands in the Great Basin since the last glaciopluvial. *Ecol. Monogr.* 53:341-382.

Appendix 1. Type specimens from the Columbia Basin in the University of Michigan Herbarium (MICH)

GENUS	SPECIES		INFRASPECIES	AUTHORITY	STATE	County
Aecidium	phlogis			Ell. & Ev.	ID	Nez Perce
Amanita	armillariformis			Trueblood & Jenkins	OR	Malheur
Amanita	malheurensis			Trueblood et al in Miller et al	OR	Malheur
Amanita	silvicola			Kauff.	OR	Wasco-Clackamas
Arcangeliella	tenax	var.	occidentalis	A.H. Sm. & Wiebe in A.H. Sm.	OR	Hood River
Armillaria	caligata			A. H. Sm.	ID	Valley
Brauniellula	leucosark			A.H. Sm. & Sing.	ID	Valley
Brauniellula	nancyae			A.H. Sm. in A.H. Sm. & Sing.	ID	Valley
Calbovista	subsculpta	var.	fumosa	A.H. Sm.	ID	Bonner
Calvatia	fumosa			Zeller	OR	Klamath
Calvatia	fumosa	var.	idahoensis	A.H. Sm. in Zeller & A.H. Sm.	ID	Adams
Calvatia	subcretacea			Zeller	OR	Hood River
Cantharellus	floccosus	f.	rainieriensis	A. H. Sm. & Morse	OR	Wasco
Cenangium	pinophilum			Weir	ID	Bonner
Cercospora	streptopi			Dearn. & Barth. in Dearn.	WA	?
Cercosporaella	aceris			Dearn. & Barth. in Dearn.	WA	?
Chamonia	brevicolumna			A.H. Sm. & Sing.	ID	Idaho
Chroogomphus	pseudovinicolor			O.K. Miller	ID	Bonner
Clavicorona	avellanea			Leathers & A.H. Sm.	ID	Bonner
Clavicorona	divaricata			Leathers & A.H. Sm.	ID	Bonner
Clitocybe	albirhiza			Bigelow & A.H. Sm.	ID	Valley
Clitocybe	caperata			H. E. Bigelow	ID	Valley
Clitocybe	crassa			Bigelow & A.H. Sm.	ID	Valley
Clitocybe	deceptiva			H. E. Bigelow	ID	Idaho
Clitocybe	epigaea			H. E. Bigelow	ID	Adams
Clitocybe	gruberi			A.H. Sm.	ID	Latah
Clitocybe	idahoensis			Bigelow	ID	Valley
Clitocybe	madefacta			H. E. Bigelow	ID	Bonner
Clitocybe	multicarpa			Bigelow	ID	Valley
Clitocybe	mutabilis			Bigelow	ID	Valley
Clitocybe	pallidipes			H. E. Bigelow	ID	Valley
Clitocybe	payettensis			Bigelow	ID	Valley
Clitocybe	profundidisca			H. E. Bigelow	ID	Bonner
Clitocybe	pseudomarginella			H. E. Bigelow	ID	Valley
Clitocybe	pungens			H. E. Bigelow	ID	Valley
Clitocybe	squamulosa	var.	montana	Bigelow	ID	Valley
Clitocybe	varispora			Bigelow	ID	Valley
Coptinus	eurysporus			M. Lange & A. H. Sm.	OR	Hood River
Cortinarius	idahoensis			Ammirati & A.H. Sm.	ID	Bonner
Cortinarius	ponderosus			A.H. Sm.	OR	Union
Crepidotus	cinnamomeus			Hessler & A.H. Sm.	ID	Bonner
Crepidotus	fimbriatus			Hessler & A.H. Sm.	ID	Valley

Appendix 1. Type specimens from the Columbia Basin in the University of Michigan Herbarium (MICH)

GENUS	SPECIES		INFRASPECIES	AUTHORITY	STATE	County
Crepidotus	<i>lagenicystis</i>			Hessler & A.H. Sm.	WA	Pierce-Lewis
Crepidotus	<i>lanuginosus</i>			Hessler & A.H. Sm.	ID	Valley
Crepidotus	<i>montanensis</i>			Hesler & A. H. Sm.	MT	Flathead
Crepidotus	<i>payettensis</i>	f.		Hessler & A.H. Sm.	ID	Valley
Crepidotus	<i>stratosus</i>			Hessler & A.H. Sm.	ID	Bonner
Crepidotus	<i>sububer</i>			Hessler & A.H. Sm.	ID	Bonner
Cyathus	<i>olla</i>	f.	<i>lanatus</i>	Brodie	ID	Owyhee
Cystoderma	<i>subpurpureum</i>			A.H. Sm. & Sing.	OR	Wasco-Clackamas
Endoptychum	<i>depressum</i>			Sing. & A.H. Sm.	ID	Idaho
Galera	<i>martipes</i>			Kauff.	OR	Hood River
Galerina	<i>anelligera</i>			A.H. Sm. & Sing.	ID	Valley
Galerina	<i>borealis</i>			A.H. Sm. & Sing.	ID	Bonner
Galerina	<i>castanescens</i>			A.H. Sm. & Sing.	ID	Bonner
Galetina	<i>diabolissima</i>			A.H. Sm.	ID	Idaho
Galerina	<i>fontinalis</i>			A.H. Sm. in A.H. Sm. & Sing.	ID	Valley
Galerina	<i>fuscobrunnea</i>			A.H. Sm.	OR	Wasco
Galerina	<i>mainsii</i>			A.H. Sm. & Sing.	MT	Flathead
Galerina	<i>nigripes</i>			A.H. Sm. & Sing.	OR	Jackson
Galerina	<i>nordmaniana</i>			A.H. Sm. & Sing.	ID	Bonner
Galerina	<i>payettensis</i>			A.H. Sm. & Sing.	ID	Valley
Galerina	<i>pseudostylifera</i>			A.H. Sm. in A.H. Sm. & Sing.	ID	Idaho
Galerina	<i>pubescentipes</i>			A.H. Sm. & Sing.	ID	Idaho
Galerina	<i>stylifera</i>	var.	<i>badia</i>	A.H. Sm. & Sing.	ID	Bonner
Galerina	<i>stylifera</i>	var.	<i>velosa</i>	A.H. Sm. & Sing.	ID	Idaho
Galerina	<i>triscopa</i>	f.	<i>longocystis</i>	A.H. Sm. & Sing.	ID	Payette
Gastroboletus	<i>subalpinus</i>	var.		Theirs & Trappe	OR	Hood River
Gastroboletus	<i>turbinatus</i>	var.	<i>flammeus</i>	A.H. Sm. in A.H. Sm. & Sing.	ID	Valley
Gymnomyces	<i>ferruginascens</i>			Sing. & A.H. Sm.	ID	Valley
Gymnopilus	<i>rufobrunneus</i>			Hesler	ID	Bonner
Hebeloma	<i>alpinicola</i>			A.H. Sm. et al.	ID	Idaho
Hebeloma	<i>idahoense</i>			A.H. Sm. et al.	ID	Valley
Hebeloma	<i>kelloggense</i>			A.H. Sm. et al.	ID	Shoshone
Hebeloma	<i>latisporum</i>			A.H. Sm. et al.	ID	Bonner
Hebeloma	<i>mesophaeum</i>	var.		A.H. Sm. et al.	ID	Idaho
Hebeloma	<i>occidentale</i>	var.		A.H. Sm. et al.	OR	Wasco-Clackamas
Hebeloma	<i>olympianum</i>			A.H. Sm. et al.	ID	Bonner
Hebeloma	<i>oregonense</i>			A.H. Sm. et al.	OR	Wasco
Hebeloma	<i>parcivulum</i>			A.H. Sm. et al.	OR	Wasco
Hebeloma	<i>pseudofastibile</i>	var.		A.H. Sm. et al.	ID	Valley
Hebeloma	<i>pungens</i>			A.H. Sm. et al.	OR	Wasco
Hebeloma	<i>salmonense</i>			A.H. Sm. et al.	ID	Idaho
Hebeloma	<i>stanleyense</i>			A.H. Sm. et al.	ID	Custer

Appendix 1. Type specimens from the Columbia Basin in the University of Michigan Herbarium (MICH)

GENUS	SPECIES		INFRASPECIES	AUTHORITY	STATE	County
Hebeloma	strophosوم			A.H. Sm. et al.	ID	Valley
Hebeloma	vinaceogheum	var.	occidentale	A.H. Sm. et al.	ID	Idaho
Helvella	maculata			Weber	ID	Bonner
Hydnellum	regium			K.A. Harrison	OR	Wasco
Hydnnum	indurescens			Hall & Stuntz	WA	Chelan
Hygrophorus	albicarneus			Hessler & A.H. Sm.	OR	Hood River
Hygrophorus	albiflavus			Hessler & A.H. Sm.	OR	Hood River
Hygrophorus	avellaneifolius			Hessler & A.H. Sm.	ID	Idaho
Hygrophorus	burgdorfensis			Hessler & A.H. Sm.	ID	Idaho
Hygrophorus	ellenae			Hesler & A.H. Sm.	ID	Boise
Hygrophorus	fuscoalboides			Hessler & A.H. Sm.	ID	Custer
Hygrophorus	inocybiformis			A . H . S m .	ID	Valley
Hygrophorus	monticola			Hessler & A.H. Sm.	ID	Valley
Hygrophorus	nordmanensis			Hessler & A.H. Sm.	ID	Bonner
Hygrophorus	pusillus			PK.	ID	Latah
Hygrophorus	velatus			Hessler & A.H. Sm.	ID	Idaho
Hygrophorus	vinicolor			Hessler & A.H. Sm.	ID	Custer
Hymenogaster	brunnescens			A.H. Sm.	ID	Valley
Hymenogaster	diabolos			A.H. Sm.	ID	Idaho
Hymenogaster	subcaeruleus			A.H. Sm.	ID	Bonner
Hymenogaster	sublilacinus			A.H. Sm.	ID	Valley
Hymenogaster	subochraceus			A.H. Sm.	ID	Valley
Hymenogaster	suborealis			A.H. Sm.	ID	Bonner
Hypholoma	despersum	var.	idahoense	A.H. Sm.-	ID	Valley
Hypoxylon	serpens	var.	macrospora	J. H. Miller	ID	Boundary
Kuehneromyces	carbonicola			A.H. Sm.	ID	Valley
Lactarius	alnicola			A.H. Sm. in Hesler & A.H. Sm.	ID	Valley
Lactarius	alpinus	var.	mitts	Hesler & A.H. Sm.	ID	Bonner
Lactarius	cascadensis			Hesler & A.H. Sm.	OR	Wasco
Lactarius	circellatus	var.	borealis	Hesler & A.H. Sm.	ID	Bonner
Lactarius	deliciosus	var.	areolatus	A.H. Sm. in Hesler & A.H. Sm.	ID	Valley
Lactarius	gossypinus			Hesler & A.H. Sm.	WY	Teton
Lactarius	kauffmanii			Hesler & A.H. Sm.	ID	Bonner
Lactarius	nordmanensis			A.H. Sm. in Hesler & A.H. Sm.	ID	Bonner
Lactarius	pallescens			Hesler & A.H. Sm.	ID	Boundary
Lactarius	payettensis			A.H. Sm. in Hesler & A.H. Sm.	ID	Valley
Lactartus	resimus	var.	intermedius	A.H. Sm. In Hesler & A.H. Sm.	ID	Custer
Lactarius	rufus	var.	parvus	Hesler & A.H. Sm.	ID	Boundary
Lactarius	uvidus	var.	montanus	Hesler & A.H. Sm.	ID	Custer
Leccinum	clavatum			A.H. Sm. in Thiers & Watling	ID	Valley
Leccinum	discolor			A.H. Sm. in Thiers & Watling	ID	Bonner
Leccinum	fallax			A.H. Sm. in Thiers & Watling	ID	Valley

Appendix 1. Type specimens from the Columbia Basin in the University of Michigan Herbarium (MICH)

GENUS	SPECIES		INFRA SPECIES	AUTHORITY	STATE	County
Leccinum	fibrillosum			A.H. Sm. in Thiers & Watling	ID	Valley
Leccinum	idahoense			A.H. Sm. in Thiers & Watling	ID	Boundary
Leccinum	incarnatum			A.H. Sm. in Thiers & Watling	ID	Valley
Leccinum	subfulvum			A.H. Sm. in Thiers & Watling	WA	Pierce-Lewis
Leccinum	truebloodii			A.H. Sm. in Thiers & Watling	ID	Owyhee
Lentinellus	montanus			O.K. Miller	ID	Valley
Lentinus	ponderosus			O.K. Miller	ID	Valley
Leptosphaeria	hysteroides			Ell. & Ev.	WA	Yakima
Leucopaxillus	albissimum	var.	monticola	Sing. & A.H. Sm.	ID	Valley
Leucopaxillus	amarus	s.f.	majusculus	Sing. & A.H. Sm.	ID	Valley
Leucopaxillus	septentrionalis			Sing. & A.H. Sm.	OR	Wasco
Linospora	brunellae			Ell. 8 Ev.	WA	Klickitat
Lyophyllum	canescens			H. Clemenccon & A.H. Sm.	ID	Bonner
Lyophyllum	chamaeleon			H. Clemenccon & A.H. Sm.	OR	Wasco
Lyophyllum	chondrocephalum			H. Clemenccon 8 A.H. Sm.	WA	Lewis
Lyophyllum	fistulosum			H. Clemenccon & A.H. Sm.	ID	Valley
Lyophyllum	gracile			H. Clemenccon & A.H. Sm.	OR	Wasco
Lyophyllum	investitum			H. Clemenccon & A.H. Sm.	OR	Wasco
Lyophyllum	leptosarx			H. Clemenccon & A.H. Sm.	ID	Valley
Macowanites	acris			Sing. & A.H. Sm.	ID	Custer
Macowanites	albidigleba			Sing. & A.H. Sm.	ID	Valley
Macowanites	americanus			Sing. & A.H. Sm.	ID	Valley
Macowanites	citrinus			Sing. & A.H. Sm.	ID	Custer
Macowanites	fulvescens			Sing. & A.H. Sm.	ID	Valley
Macowanites	fuscoviolaceus			Sing. & A.H. Sm.	ID	Valley
Macowanites	lilacinus			A.H. Sm.	ID	Valley
Macowanites	nauseosus			A.H. Sm.	ID	Valley
Macowanites	olidus			A.H. Sm.	ID	Adams
Macowanites	pinicola			A.H. Sm.	ID	Valley
Macowanites	pseudometricus			A.H. Sm.	ID	Valley
Macowanites	subolivaceous			A.H. Sm.	ID	Custer
Macowanites	subrosaceus			A.H. Sm.	ID	Valley
Macowanites	vinicolor			A.H. Sm.	ID	Valley
Marsonia	rhamni			Ell. & Ev.	WA	Benton
Martellia	foetens			Sing. & A.H. Sm.	ID	Idaho
Martellia	fragrans			A.H. Sm.	ID	Valley
Martellia	fulvispora			A.H. Sm.	ID	Valley
Martellia	idahoensis			Sing. & A.H. Sm.	ID	Valley
Martellia	subalpina			A.H. Sm.	ID	Valley
Martellia	subochracea			A.H. Sm.	ID	Valley
Mycolevis	siccigleba			A.H. Sm.	ID	Bonner
Neournula	nordmanensis			Paden & Tylutki	ID	Bonner

Appendix I. Type specimens from the Columbia Basin in the University of Michigan Herbarium (MICH)

GENUS	SPECIES		INFRA SPECIES	AUTHORITY	STATE	County
Omphalina	chrysophylla			Bigelow	ID	Idaho
Peniophora	decorticans			Burt	WA	Klickitat
Phaeocollybia	deceptiva			A.H. Sm. & Trappe	ID	Bonner
Phialea	seminicola			Kienh. & Cash	OR	Hood River
Phleospora	megarrhizae			Ell. & Ev.	WA	Benton
Pholiota	agglutinata			A.H. Sm. & Hesler	ID	Valley
Pholiota	astripes			A.H. Sm. & Hesler	WY	Teton
Pholiota	aurantoflava			A.H. Sm. & Hesler	ID	Bonner
Pholiota	avellaneifolia			A.H. Sm. & Hesler	ID	Valley
Pholiota	baptistii			A.H. Sm. & Hesler	ID	Ada
Pholiota	brunnea			A.H. Sm. & Hesler	ID	Valley
Pholiota	conica			A.H. Sm. & Hesler	ID	Bonner
Pholiota	flavida	var.	graveolens	A.H. Sm. & Hesler	ID	Bonner
Pholiota	flavopallida			A.H. Sm. & Hesler	ID	Bonner
Pholiota	fulvodisca			A.H. Sm. & Hesler	ID	Valley
Pholiota	fulvozonata			A.H. Sm. & Hesler	ID	Bonner
Pholiota	gruberi			A.H. Sm. & Hesler	ID	Nez Perce
Pholiota	hiemalis			A.H. Sm. & Hesler	ID	Boundary
Pholiota	humii			A.H. Sm. & Hesler	ID	Idaho
Pholiota	lubrica	var.	luteifolia	A.H. Sm. & Hesler	ID	Adams
Pholiota	luteola			A.H. Sm. & Hesler	ID	Valley
Pholiota	'macrocystis			A.H. Sm. & Hesler	ID	Valley
Pholiota	malicola	var.	macropoda	A.H. Sm. & Hesler	ID	Valley
Pholiota	milleri			A.H. Sm. & Hesler	ID	Bonner
Pholiota	molesta			A.H. Sm. & Hesler	ID	Valley
Pholiota	nigripes			A.H. Sm. & Hesler	ID	Idaho
Pholiota	obscura			A.H. Sm. & Hesler	ID	Valley
Pholiota	occidentalis	var.	luteifolia	A.H. Sm. & Hesler	ID	Boundary
Pholiota	pallida	var.	brevipes	A.H. Sm. & Hesler	ID	Valley
Pholiota	pulchella			A.H. Sm. & Hesler	ID	Bonner
Pholiota	rivulosa			A.H. Sm. & Hesler	ID	Valley
Pholiota	rufodisca			A.H. Sm. & Hesler	ID	Valley
Pholiota	scamboides			A.H. Sm. & Hesler	ID	Bonner
Pholiota	subechinata			A.H. Sm. & Hesler	WA	Lewis
Pholiota	sublubrica			A.H. Sm. & Hesler	ID	Boise
Pholiota	subsaponacea			A.H. Sm. & Hesler	ID	Boundary
Pholiota	tetonensis			A.H. Sm. & Hesler	WY	Teton
Pholiota	umbilicata			A.H. Sm. & Hesler	ID	Boundary
Pholiota	vinaceobrunnea			A.H. Sm. & Hesler	ID	Valley
Phoma	lunulatospora			Wehm.	WA	Lewis
Phoma	lupini			Ell. & Ev.	WA	Klickitat
Phoma	pedicularis	var.	minor	Wehm.	WA	?

Appendix 1. Type specimens from the Columbia Basin in the University of Michigan Herbarium (MICH)

GENUS	SPECIES	INFRA SPECIES	AUTHORITY	STATE	County
Phyllosticta	ertogonii		W.B. Cke. in W.B. Cke. & C.G. Shaw	WA	Klickitat
Phyllosticta	hosackiae		W.B. Cke. in W.B. Cke. & C.G. Shaw	WA	Klickitat
Placosphaeria	shastensis		Sprague & W.B. Cke.	OR	
Poria	carnicolor		Baxter	ID	Bonner
Poria	coniferarum		Baxter	ID	Bonner
Poria	monticola		Murr.	ID	Bonner
Porphyrellus	amylosporus		A.H. Sm.	ID	Bonner
Protogautieria	lutea		A.H. Sm.	WA	Pend Oreille
Psathyrella	abieticola		A.H. Sm.	ID	Valley
Psathyrella	acuticystis		A.H. Sm.	ID	Boundary
Psathyrella	annulata		A.H. Sm.	ID	Bonner
Psathyrella	argentata		A.H. Sm.	ID	Bonner
Psathyrella	boulderensis		A.H. Sm.	ID	Valley
Psathyrella	communis		A.H. Sm.	ID	Bonner
Psathyrella	crassulistipes		A.H. Sm.	ID	Bonner
Psathyrella	ellenae		A.H. Sm.	ID	Valley
Psathyrella	equina		A.H. Sm.	ID	Valley
Psathyrella	fragrans		A.H. Sm.	ID	Valley
Psathyrella	fulva		A.H. Sm.	ID	Bonner
Psathyrella	fuscospora		A.H. Sm.	ID	Valley
Psathyrella	gruberi		A.H. Sm.	OR	Hood River
Psathyrella	idahoensis		A.H. Sm.	ID	Idaho
Psathyrella	lepidotooides		A.H. Sm.	ID	Bonner
Psathyrella	mesocystis		A.H. Sm.	ID	Valley
Psathyrella	monticola		A.H. Sm.	ID	Adams
Psathyrella	mucrocystis		A.H. Sm.	ID	Valley
Psathyrella	naucoroides		A.H. Sm.	ID	Boundary
Psathyrella	nezperci		A.H. Sm.	ID	Idaho
Psathyrella	oregonensis		A.H. Sm.	OR	Hood River
Psathyrella	owyheensis		4.H. Sm.	ID	Owyhee
Psathyrella	pallida		A.H. Sm.	ID	Idaho
Psathyrella	payettensis		A.H. Sm.	ID	Idaho
Psathyrella	populorum		Trueblood & A.H. Sm. in A.H. Sm.	ID	Owyhee
Psathyrella	praetenuis		A.H. Sm.	ID	Bonner
Psathyrella	pseudolimicola		A.H. Sm.	ID	Idaho
Psathyrella	pseudotrepida		A.H. Sm.	ID	Bonner
Psathyrella	psilocyboides		A.H. Sm.	ID	Adams
Psathyrella	quercicola		A.H. Sm.	OR	Jackson
Psathyrella	roothaanensis		A.H. Sm.	ID	Boundary
Psathyrella	rufogrisea	/ar.	A.H. Sm.	ID	Bonner
Psathyrella	rufogrisea		A.H. Sm.	ID	Valley
Psathyrella	salictaria		A.H. Sm.	ID	Idaho

Appendix 1. Type specimens from the Columbia Basin in the University of Michigan Herbarium (MICH)

GENUS	SPECIES		INFRA SPECIES	AUTHORITY	STATE	County
Psathyrella	stuntzii			A.H. Sm.	WA	Chelan
Psathyrella	subalpina			A.H. Sm. & Stuntz	WA	Lewis
Psathyrella	subcaespitosa			A . H . S m .	OR	Wasco
Psathyrella	sublongipes			A.H. Sm.	ID	Idaho
Psathyrella	subnuda	var.	velosa	A.H. Sm.	ID	Bonner
Psathyrella	subradicata			A.H. Sm.	ID	Owyhee
Psathyrella	uskensis			A.H. Sm.	WA	Pend Oreille
Psathyrella	variata			A.H. Sm.	ID	Bonner
Psathyrella	vesiculocystis			A.H. Sm.	ID	Idaho
Psathyrella	wapinitaensis			P. Kempton & A.H. Sm. in A.H. Sm.	OR	Wasco
Psathyrella	warrenensis			A.H. Sm.	ID	Idaho
Psilocybe	subborealis			Guzman & A.H. Sm.	ID	Boundary
Puccinia	angelicae			Ell. & Ev.	WA	Klickitat
Puccinia	chelonis			Diet. & Holw. in Diet.	WA	?
Puccinia	gemella			Diet. & Holw. in P. Syd. & Syd.	WA	?
Puccinia	phaceliae			Syd. & Holw. in P. Syd. & Syd.	WA	?
Puccinia	sejuncta			Syd. in Syd. & P. Syd.	WA	Klickitat
Rhizopogon	abietis			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	albidus			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	albiroseus			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	alkalivirens			A.H. Sm. in A.H. Sm. & Zeller	ID	Adams
Rhizopogon	alpestris			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	anomalus			A.H. Sm. in A.H. Sm. & Zeller	ID	Boundary
Rhizopogon	arenicola			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	argillaceus			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	argillascens			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	atrovilaceus			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	aurantiacus			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	avellaneitectus			A.H. Sm. in A.H. Sm. & Zeller	WA	Pend Oreille
Rhizopogon	brunneicolor			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	brunneifibrillosus			A.H. Sm. in A.H. Sm. & Zeller	OR	Wasco
Rhizopogon	butyraceus			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	chamaleontinus			A.H. Sm.	ID	Bonner
Rhizopogon	cinerascens			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	clavitisporus			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	colossus	var.	nigromaculatus	A.H. Sm. in A.H. Sm. & Zeller	WA	Yakima
Rhizopogon	cusickiensis			A.H. Sm. in A.H. Sm. & Zeller	WA	Pend O'reille
Rhizopogon	cylindrisporus			A.H. Sm. in A.H. Sm. & Zeller	ID	Shoshone
Rhizopogon	deceptivus			A.H. Sm. in A.H. Sm. & Zeller	ID	Adams
Rhizopogon	defectus			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	diabolicus			A.H. Sm. In A.H. Sm. & Zeller	ID	Idaho
Rhizopogon	ellenae			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley

Appendix 1. Type specimens from the Columbia Basin in the University of Michigan Herbarium (MICH)

GENUS	SPECIES		INFRASPECIES	AUTHORITY	STATE	County
Rhizopogon	<i>evadens</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Custer
Rhizopogon	<i>evadens</i>	var	<i>subalpinus</i>	A.H. Sm. in A.H. Sm. & Zeller	ID	Idaho
Rhizopogon	<i>fallax</i>			A.H. Sm. in A.H. Sm. & Zeller	I D	Custer
Rhizopogon	<i>flavofibrillosus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>florencianus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Idaho
Rhizopogon	<i>fragmentatus</i>			A.H. Sm. in A.H. Sm. & Zeller	WA	Klickitat
Rhizopogon	<i>fragrans</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Idaho
Rhizopogon	<i>griseogleba</i>			A.H. Sm. in A.H. Sm. & Zeller	I D	Valley
Rhizopogon	<i>hawkeri</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>idahoensis</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>inquinatus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	<i>kauffmanii</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Idaho
Rhizopogon	<i>laetiflavus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>luteoalboides</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Idaho
R h i z o p o g o n	<i>luteoalbus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Idaho
Rhizopogon "	<i>luteoloides</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Idaho
Rhizopogon	<i>luteorubescens</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>lutescens</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>masonae</i>			A.H. Sm. in A.H. Sm. & Zeller	OR	Wasco-Clackamas
Rhizopogon	<i>milleri</i>			A.H. Sm.	ID	Bonner
Rhizopogon	<i>molligleba</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Idaho
Rhizopogon	<i>monticola</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>mutabilis</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Idaho
Rhizopogon	<i>obscurus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>Dchraceisporus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>ochraceobrunnescens</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	<i>ochraceorubens</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>ochroleucus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	<i>ochroleucoides</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>odoratus</i>			A.H. Sm. in A.H. Sm. & Zeller	WA	Ferry
Rhizopogon	<i>olivaceofuscus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	<i>olivaceoluteus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	<i>oswaldii</i>			A.H. Sm. in A.H. Sm. & Zeller	WA	Klickitat
Rhizopogon	<i>parvulus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	<i>pedicellus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>proximus</i>			A.H. Sm. in A.H. Sm. & Zeller	WA	Pend Oreille
Rhizopogon	<i>pseudoaffinis</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>pseudoalbus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>pseudoroseolus</i>			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	<i>pseudovillosulus</i>			A.H. Sm. in A.H. Sm. & Zeller	WA	Pend Oreille
Rhizopogon	<i>quercicola</i>			A.H. Sm. in A.H. Sm. & Zeller	OR	Wasco
Rhizopogon	<i>rogersii</i>			A.H. Sm. in A.H. Sm. & Zeller	OR	Wallowa

Appendix 1. Type specimens from the Columbia Basin in the University of Michigan Herbarium (MICH)

GENUS	SPECIES		INFRASPECIES	AUTHORITY	STATE	County
Rhizopogon	rubescens	var.	ochraceous	A.H. Sm. in A.H. Sm. & Zeller	ID	Idaho
Rhizopogon	rubescens	var.	pallidimaculatus	A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	rubescens	var.	rileyi	A.H. Sm. in A.H. Sm. & Zeller	ID	Custer
Rhizopogon	rudus			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	salebrosus			A.H. Sm. in A.H. Sm. & Zeller	ID	Idaho
Rhizopogon	semireticulatus			A.H. Sm. in A.H. Sm. & Zeller	WA	Pend Oreille
Rhizopogon	semitectus			A.H. Sm.	ID	Bonner
Rhizopogon	sordidus			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	subbadius			A.H. Sm. in A.H. Sm. & Zeller	ID	Custer
Rhizopogon	subcaeruleascens			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	subcaeruleascens	var.	subpannosus	A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	subcaeruleascens	var.	viridescens	A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	subcinnamomeus			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	subcitrinus			A.H. Sm. in A.H. Sm. & Zeller	ID	Adams
Rhizopogon	subclavitisporus			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	subcroceus			A.H. Sm. in A.H. Sm. & Zeller	ID	Adams
Rhizopogon	subgelatinosus			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	sublateritius			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	subolvascens			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	subpurpurascens			A.H. Sm.	ID	Custer
Rhizopogon	subradicatus			A.H. Sm. in A.H. Sm. & Zeller	WA	Ferry
Rhizopogon	subsalmonioides			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	subsalmionioides	var.	griseolilascens	A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	subsalmionioides	var.	persicinus	A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	subsalmionioides	var.	roseitinctus	A.H. Sm. in A.H. Sm. & Zeller	ID	Idaho
Rhizopogon	subsalmionioides	var.	similis	A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	odus			A.H. Sm. in A.H. Sm. & Zeller	ID	Valley
Rhizopogon	umbrinoviolascens			A.H. Sm. in A.H. Sm. & Zeller	WA	Pend Oreille
Rhizopogon	variabilisporus			A.H. Sm.	ID	Valley
Rhizopogon	ventricisporus			A.H. Sm. in A.H. Sm. & Zeller	ID	Idaho
Rhizopogon	vesiculosus			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	villescens			A.H. Sm. in A.H. Sm. & Zeller	ID	Bonner
Rhizopogon	vinicolor			A.H. Sm. in A.H. Sm. & Zeller	ID	Boise
Russula	brevipes	var.	acrior	Shaffer	ID	Valley
Russula	densifolia	f.	cremelspora	Shaffer	ID	Valley
Russula	viosa	ssp.	occidentalis	Sing.	ID	Boundary
Septoglomerum	salicis-fendlerianae			Dearn. & Barth. in Dearn.	ID	Canyon
Spathularia	flavida	var.	ramosa	Mains	ID	Idaho
Stigmopeltis	graminicola			Wehm.	WA	
Suillus	albivelatus			A.H. Sm., Thiers & O.K. Miller	ID	Bonner
Suillus	borealis			A.H. Sm., Thiers & O.K. Miller	ID	Bonner
Suillus	flavo-granulatus			A.H. Sm., Thiers & O.K. Miller	ID	Bonner

Appendix 1. Type specimens from the Columbia Basin in the University of Michigan Herbarium (MICH)

GENUS	SPECIES		INFRA SPECIES	AUTHORITY	STATE	County
<i>Suillus</i>	<i>pallidiceps</i>			A.H. Sm. & Thiers	ID	Valley
<i>Suillus</i>	<i>pseudobrevipes</i>			A.H. Sm. & THIERS	ID	Custer
<i>Suillus</i>	<i>tomentosus</i>	var.	<i>discolor</i>	A.H. Sm., Thiers & O.K. Miller	ID	Bonner
<i>Tilletia</i>	<i>brevifaciens</i>			FISCH G.W.	ID	Lewis
<i>Tilletia</i>	<i>fusca</i>			Ell. & Ev.	ID	Boise
<i>Tilletia</i>	<i>scrobiculata</i>			G.W. Fisch.	ID	Valley
<i>Tricholoma</i>	<i>cystidiosum</i>			L.C.C. Krieger	OR	D e s c h u t e s
<i>Tricholomopsis</i>	<i>fallax</i>			A.H. Sm.	ID	Valley
<i>Truncocolumella</i>	<i>citrina</i>	var.	<i>separabilis</i>	A.H. Sm. in A.H. Sm. & Sing.	ID	Valley
<i>Typhula</i>	<i>idahoensis</i>			Remsberg	ID	Camas
<i>Vascellum</i>	<i>lloydianum</i>			A.H. Sm.	WA	Lewis
<i>Weraroa</i>	<i>coprophila</i>			A.H. Sm.	ID	V a l l e y
<i>Weraroa</i>	<i>nivalis</i>			A.H. Sm.	ID	Bonner
<i>Xeromphalina</i>	<i>brunneola</i>			O.K. Miller	ID	Bonner

Appendix 2. References to publication of new taxa (type specimens) from the Columbia Basin deposited in the University of Michigan Herbarium (MICH)

GENUS	SPECIES	INFRA SPECIES	Journal/Book	VOL.:PG	YEAR
Aecidium	phlogis		Bull. Torrey Bot. Club	24: 284	1897
Amanita	armillariformis		Mycologia	82: 120	1990
Amanita	malheurensis		Mycologia	82:126	1990
Amanita	silvicola		Pap. Michigan Acad. Sci.	5:123	1926
Arcangelia	tenax		Mycologia	55422	1963
Armillaria	caligata	var. occidentalis	Sydomia Beih.	8: 373	1979
Brauniellula	leucosarx		Mycologia	50:928	1958
Brauniellula	nancyae		Mycologia	50:931	1958
Calbovista	subsculpta	var. fumosa	Mycopathol. Mycol. Appl.	26:396	1965
Calvatia	fumosa		Mycologia	39:300	1947
Calvatia	fumosa	var. idahoensis	Lloydia	27:156	1964
Calvatia	subcretacea		Mycologia	39:298	1947
Cantharellus	floccosus	f. rainieriensis	Mycologia	39: 521	1947
Cenangium	piniphilum		Phytopathology	11:294	1921
Cercospora	streptopi		Mycologia	9:363	1917
Cercosporaella	aceris		Mycologia	9:362	1917
Chamonixia	brevicolumna		Brittonia	11:219	1959
Chroogomphus	pseudovinicolor		Mycologia	58:855	1966
Clavicorona	avellanea		Mycologia	59:460	1967
Clavicorona	divaricata		Mycologia	59:458	1967
Clitocybe	albirhiza		Mycologia	54:498	1962
Clitocybe	caperata		Beih. Nova Hedwigia	72: 90	1982
Clitocybe	crassa		Mycologia	54:503	1962
Clitocybe	deceptiva		Beih. Nova Hedwigia	72: 108	1982
Clitocybe	epigaea		Beih. Nova Hedwigia	81: 392	1985
Clitocybe	gruberi		Mycologia	36:245	1944
Clitocybe	idahoensis		Lloydia	28:165	1965
Clitocybe	madefacta		Beih. Nova Hedwigia	81: 362	1985
Clitocybe	multicarpa		Bull. Mens. Soc. Linn. Lyon Numero	42	1974
Clitocybe	mutabilis		Special		
Clitocybe	pallidipes		Mycotaxon	6:181	1977
Clitocybe	payettensis		Beih. Nova Hedwigia	81: 382	1985
Clitocybe	profundidisca		cryptog., Mycol.	4: 96	1983
Clitocybe	pseudomarginella		Beih. Nova Hedwigia	81: 394	1985
Clitocybe	pungens		Beih. Nova Hedwigia	72: 95	1982
Clitocybe	squamulosa	var. montana	Beih. Nova Hedwigia	81: 351	1985
Clitocybe	varispora		Lloydia	31:53	1968
Coprinus	eurysporus		Bull. Mens. Soc. Linn. Lyon Numero	41	1974
Cortinarius	idahoensis		Special		
Cortinarius	ponderosus		Mycologia	45: 773	1953
Crepidotus	cinnamomeus		Mycotaxon	7:260	1978
Crepidotus	fimbriatus		Contr. Univ. Michigan Herb.	2:6	1939
Crepidotus	lagenicystis		North Amer. Sp. Crepidotus	109	1965
Crepidotus	lanuginosus		North Amer. Sp. Crepidotus	136	1965
Crepidotus	montanensis		North Amer. Sp. Crepidotus	113	1965
Crepidotus	payettensis		North Amer. Sp. Crepidotus	119	1965
Crepidotus	stratosus		North Amer. Sp. Crepidotus	117	1965
Crepidotus	sububer		North Amer. Sp. Crepidotus	88	1965
Cyathus	olla	f. lanatus	North Amer. Sp. Crepidotus	22	1965
Cystoderma	subpurpureum		North Amer. Sp. Crepidotus	30	1965
Endoptychum	depressum		Bot. Not.	131: 32	1978
Galera	martipes		Mycologia	40:457	1948
Galerina	anelligera		Brittonia	10:216	1958
			Pap. Michigan Acad. Sci.	5: 129	1926
			Mycologia	50:475	1958

Appendix 2. References to publication of new taxa (type specimens) from the Columbia Basin deposited in the University of Michigan Herbarium (MICH)

GENUS	SPECIES	INFRA SPECIES	Journal/Book	VOL.:PG	YEAR
Galerina	borealis		Mycologia	50:470	1958
Galerina	castanescens		Mycologia	50:471	1958
Galerina	diabolissima		Sydotia Beih.	1:49	1957
Galerina	fontinalis		Monogr. Genus Galerina	307	1964
Galerina	fuscobrunnea		Mycologia	45:902	1953
Galerina	mainsii		Mycologia	50:479	1958
Galerina	nigripes		Mycologia	50:480	1958
Galerina	nordmaniana		Mycologia	50:480	1958
Galerina	payettensis		Mycologia	50:481	1958
Galerina	pseudostylifera		Monogr. Genus Galerina	127	1964
Galerina	pubescentipes		Monogr. Genus Galerina	320	1964
Galerina	stylifera	var. <i>badia</i>	Mycologia	50:486	1958
Galerina	stylifera	var. <i>velosa</i>	Mycologia	50:487	1958
Galerina	triscopa	f. <i>longocystis</i>	Mycologia	50:489	1958
Gastroboletus	subalpinus		Brittonia	21:245	1969
Gastroboletus	turbinatus	var. <i>flammeus</i>	Brittonia	11: 211	1959
Gymnomyces	ferruginascens		Mem. Torrey Bot. Club	21(3): 54	1960
Gymnopilus	rufobrunneus		North Amer. Sp. Gymnopilus	54	1969
Hebeloma	alpinicola		Veiled Sp. Hebeloma in Western United States	48	1983
Hebeloma	idahoense		Veiled Sp. Hebeloma in Western United States	143	1983
Hebeloma	<i>kellloggense</i>		Veiled Sp. Hebeloma in Western United States	110	1983
Hebeloma	<i>latisporum</i>		Veiled Sp. Hebeloma in Western United States	142	1983
Hebeloma	<i>mesophaeum</i>	var. <i>subobscurum</i>	Veiled Sp. Hebeloma in Western United States	74	1983
Hebeloma	<i>occidentale</i>		Veiled Sp. Hebeloma in Western United States	121	1983
Hebeloma	<i>olympianum</i>		Veiled Sp. Hebeloma in Western United States	101	1983
Hebeloma	<i>oregonense</i>		Veiled Sp. Hebeloma in Western United States	149	1983
Hebeloma	<i>parcivulum</i>		Veiled Sp. Hebeloma in Western United States	106	1983
Hebeloma	<i>pseudofastibile</i>	var. <i>distans</i>	Veiled Sp. Hebeloma in Western United States	114	1983
Hebeloma	<i>pungens</i>		Veiled Sp. Hebeloma in Western United States	109	1983
Hebeloma	<i>salmonense</i>		Veiled Sp. Hebeloma in Western United States	86	1983
Hebeloma	<i>stanleyense</i>		Veiled Sp. Hebeloma in Western United States	147	1983
Hebeloma	<i>strophosum</i>	var. <i>occidentale</i>	Veiled Sp. Hebeloma in Western United States	63	1983
Hebeloma	<i>vtnaceogriseum</i>		Veiled Sp. Hebeloma in Western United States	28	1983
Helvella	maculata		Beih. Nova Hedwigia	51: 27	1975
Hydnellum	<i>regium</i>		Canad. J. Bot.	42:1231 1	1964
Hydnnum	<i>indurescens</i>		Mycologia	64: 24	1972
Hygrophorus	<i>albicarneus</i>		North Amer. Sp. Hygrophorus	197	1963
Hygrophorus	<i>albiflavus</i>		North Amer. Sp. Hygrophorus	260	1963
Hygrophorus	<i>avellaneifolius</i>		North Amer. Sp. Hygrophorus	370	1963
Hygrophorus	<i>burgdorfensis</i>		North Amer. Sp. Hygrophorus	67	1963

Appendix 2. References to publication of new taxa (type specimens) from the Columbia Basin deposited in the University of Michigan Herbarium (MICH)

GENUS	SPECIES	INFRA SPECIES	JOURNAL/BOOK	VOL.:PG	YEAR
Hygrophorus	<i>ellenae</i>		North Amer. Sp. Hygrophorus	329	1963
Hygrophorus	fuscoalboides		North Amer. Sp. Hygrophorus	384	1963
Hygrophorus	<i>inocybiformis</i>		Mycologia	36:246	1944
Hygrophorus	monticola		North Amer. Sp. Hygrophorus	359	1963
Hygrophorus	<i>nordmanensis</i>		North Amer. Sp. Hygrophorus	65	1963
Hygrophorus	pusillus		Bull. Torrey Bot. Club	29:69	1902
Hygrophorus	<i>velatus</i>		North Amer. Sp. Hygrophorus	360	1963
Hygrophorus	vinicolor		North Amer. Sp. Hygrophorus	356	1963
Hymenogaster	brunnescens		Mycologia	58:111 1	1966
Hymenogaster	diabolos		Mycologia	58:107	1966
Hymenogaster	subcaeruleus		Mycologia	58:106	1966
Hymenogaster	sublilacinus		Mycologia	58:108	1966
Hymenogaster	<i>subochraceus</i>		Mycologia	58:110 1	1966
Hymenogaster	suborealis		Mycologia	58:111	1966
Hypholoma	despersum		Mycologia	36:247	1944
Hypoxylon	serpens		Mycologia	25: 327	1933
Kuehneromyces	<i>carbonicola</i>		Sydowia Beih.	1:53	1957
Lactarius	<i>alnica</i>		Brittonia	12:319	1960
Lactarius	<i>alpinus</i>	var. mitts	North Amer. Sp. Lactarius	497	1979
Lactarius	cascadensis	var. borealis	North Amer. Sp. Lactarius	336	1979
Lactarius	circellatus	var. areolatus	North Amer. Sp. Lactarius	378	1979
Lactarius	deliciosus		Brittonia	12:135	1960
Lactarius	gossypinus		North Amer. Sp. Lactarius	291	1979
Lactarius	<i>kauffmannii</i>		North Amer. Sp. Lactarius	351	1979
Lactarius	<i>nordmanensis</i>		Bruttonia	12:308	1960
Lactarius	<i>pallescens</i>		North Amer. Sp. Lactarius	323	1979
Lactarius	<i>payettensis</i>		Brittonia	12:324	1960
Lactarius	resimus	var. intermedius	Bruttonia	12:317	1960
Lactarius	rufus	var. parvus	North Amer. Sp. Lactarius	447	1979
Lactarius	uvidus	var. montanus	North Amer. Sp. Lactarius	340	1979
Leccinum	clavatum		Michigan Bot.	5:135	1966
Leccinum	<i>discolor</i>		Michigan Bot.	5:152	1966
Leccinum	fallax		Michigan Bot.	5:146	1966
Leccinum	fibrillosum		Michigan Bot.	5:165	1966
Leccinum	<i>idahoense</i>		Uoydia	31:256	1968
Leccinum	<i>incamatum</i>		Michigan Bot.	5:163	1966
Leccinum	subfulvum		Michigan Bot.	5:141	1966
Leccinum	truebloodii		Uoydia	31:265	1968
Lentinellus	<i>montanus</i>		Mycologia	57:933	1965
Lentinus	ponderosus		Mycologia	57:941	1965
Leptosphaeria	<i>hysteroides</i>		Bull. Washburn Lab. Nat. Hist.	1: 4	1884
Leucopaxillus	albissimus	var. monticola	Mycologia	39:730	1947
Leucopaxillus	amarus	s.f. majusculus	Pap. Michigan Acad. Sci.	28:129	1943
Leucopaxillus	septentrionalis		Mycologia	39:726	1947
Linospora	<i>bruneilae</i>		Proc. Acad. Nat. Sci. Philadelphia	1894:	1894
				337	
Lyophyllum	canescens		Mycotaxon	18: 394	1983
Lyophyllum	chamaeleon		Mycotaxon	18: 398	1983
Lyophyllum	<i>chondrocephalum</i>		Mycotaxon	18: 400	1983
Lyophyllum	fistulosum		Mycotaxon	18: 408	1983
Lyophyllum	gracile		Mycotaxon	18: 418	1983
Lyophyllum	investitum		Mycotaxon	18: 419	1983
Lyophyllum	leptosarx		Mycotaxon	18: 421	1983
Macowanites	acris		Mem. Torrey Bot. Club	21:86	1960
Macowanites	albidigleba		Mem. Torrey Bot. Club	21:85	1960

Appendix 2. References to publication of new taxa (type specimens) from the Columbia Basin deposited in the University of Michigan Herbarium (MICH)

GENUS	SPECIES	INFRA SPECIES	JOURNAL/BOOK	VOL.:PG	YEAR
Macowanites	americanus		Mem. Torrey Bot. Club	21:88	1960
Macowanites	citrinus		Mem. Torrey Bot. Club	21:82	1960
Macowanites	fulvescens		Mem. Torrey Bot. Club	21:84	1960
Macowanites	fuscoviolaceus		Mem. Torrey Bot. Club	21:87	1960
Macowanites	lilacinus		Mycologia	55:426	1963
Macowanites	nauseosus		Mycologia	55:428	1963
Macowanites	olidus		Mycologia	55:429	1963
Macowanites	pinicola		Mycologia	55:430	1963
Macowanites	pseudometricus		Mycologia	55:431	1963
Macowanites	subolivaceous		Mycologia	55:432	1963
Macowanites	subrosaceus		Mycologia	55:433	1963
Macowanites	vtnicolor		Mycologia	55:434	1963
Marsonia	rhamni		Proc. Acad. Nat. Sci. Philadelphia	436	1895
Martellia	foetens		Mem. Torrey Bot. Club	21:36	1960
Martellia	fragrans		Mycologia	55:437	1963
Martellia	fulvispora		Mycoiogia	55:438	1963
Marteilia	idahoensis		Mem. Torrey Bot. Club	21:43	1960
Martellia	subalpina		Mycologia	55:439	1963
Martellia	subochracea		Mycologia	55:440	1963
Mycolevis	siccigleba		Mycopathol. Mycoi. Appl.	26:391	1965
Neournnia	nordmanensis		Mycologia	60: 1161	1969
Omphalina	chrysophylla		Mycoiogia	62:22	1970
Peniophora	decorticans	var. salmonispora	Ann. Missouri Bot. Gard.	12:344	1925
Phaeocollybia	deceptiva		Mycologia	64:1142	1972
Phialea	seminicoia		Mycoiogia	29: 82	1937
Phleospora	megarrhizae		Proc. Acad. Nat. Sci. Philadelphia	369	1894
Pholiota	agglutinata		North Amer. Sp. Pholiota	240	1968
Pholiota	atipes		North Amer. Sp. Pholiota	114	1968
Pholiota	aurantioflava		North Amer. Sp. Pholiota	87	1968
Pholiota	avellaneifolia		North Amer. Sp. Pholiota	340	1968
Pholiota	baptistii		North Amer. Sp. Pholiota	314	1968
Pholiota	brunnea		North Amer. Sp. Pholiota	84	1968
Pholiota	conica	var. graveoiens	North Amer. Sp. Pholiota	116	1968
Pholiota	flavida		North Amer. Sp. Pholiota	179	1968
Pholiota	flavopailida		North Amer. Sp. Pholiota	241	1968
Pholiota	fulvodusca		North Amer. Sp. Pholiota	274	1968
Pholiota	fulvozonata		North Amer. Sp. Pholiota	280	1968
Pholiota	gruberi		North Amer. Sp. Pholiota	345	1968
Pholiota	hiemaiis		North Amer. Sp. Pholiota	215	1968
Pholiota	humii		North Amer. Sp. Pholiota	251	1968
Pholiota	lubrica	var. luteifolia	North Amer. Sp. Pholiota	344	1968
Pholiota	luteola		North Amer. Sp. Pholiota	334	1968
Pholiota	macrocystis		North Amer. Sp. Pholiota	354	1968
Pholiota	malicola	var. macropoda	North Amer. Sp. Pholiota	181	1968
Pholiota	milleri		North Amer. Sp. Pholiota	351	1968
Pholiota	molesta		North Amer. Sp. Pholiota	284	1968
Pholiota	nigripes		North Amer. Sp. Pholiota	110	1968
Pholiota	obscura		North Amer. Sp. Pholiota	108	1968
Pholiota	occidentalis	var. luteifolia	North Amer. Sp. Pholiota	272	1968
Pholiota	pallida		North Amer. Sp. Pholiota	113	1968
Pholiota	pulchella	var. brevipes	North Amer. Sp. Pholiota	299	1968
Pholiota	rivulosa		North Amer. Sp. Pholiota	273	1968
Pholiota	rufodisca		North Amer. Sp. Pholiota	264	1968
Pholiota	scamboides		North Amer. Sp. Pholiota	309	1968
Pholiota	subechinata		North Amer. Sp. Pholiota	66	1968

Appendix 2. References to publication' of new taxa (type specimens) from the Columbia Basin deposited in the University of Michigan Herbarium (MICH)

GENUS	SPECIES	INFRASPECIES	Journal/Book	VOL.:PG	YEAR
Pholiota	subiubrica		North Amer. Sp. Pholiota	330	1968
Pholiota	subsaponacea		North Amer. Sp. Pholiota	282	1968
Phoiota	tonensis		North Amer. Sp. Pholiota	308	1968
Phoiota	umbilicata		North Amer. Sp. Pholiota	102	1968
Pholiota	vtnaceobrunnea		North Amer. Sp. Pholiota	252	1968
Phoma	lunulatospora		Sydowia	6:437	1952
Phoma	lupini		Bull. Washburn Lab. Nat. Hist.	1: 6	1884
Phoma	pedicularis	var. minor	Sydowia	6:437	1952
Phyllosticta	eriogonii		Mycologia	44:797	1952
Phyllosticta	hosackiae		Mycoiogia	44:796	1952
Placosphaeria	shastensis		Mycologia	31:46	1939
Poria	carnicolor		Pap. Michigan Acad. Sci.	26:109	1941
Poria	coniferarum		Pap. Michigan Acad. Sci.	23:300	1938
Poria	monticola		Mycoiogia	12:90	1920
Porphyrelius	amylosporus		Mycopathol. Mycol. Appl.	26:397	1965
Protogautieria	lutea		Mycopathol. Mycol. Appl.	26:393	1965
Psathyrella	abieticola		Mem. New York Bot. Gard.	24:348	1972
Psathyrella	acuticystis		Mem. New York Bot. Gard.	24:379	1972
Psathyrella	annulata		Mem. New York Bot. Gard.	24:65	1972
Psathyreia	argentata		Mem. New York Bot. Gard.	24:268	1972
Psathyrella	boulderensis		Mem. New York Bot. Gard.	24:402	1972
Psathyrella	communis		Mem. New York Bot. Gard.	24:392	1972
Psathyrella	crassulistipes		Mem. New York Bot. Gard.	24:173	1972
Psathyrella	ellenae		Mem. New York Bot. Gard.	24:74	1972
Psathyrella	equina		Mem. New York Bot. Gard.	24:269	1972
Psathyrella	fragrans		Mem. New York Bot. Gard.	24:372	1972
Psathyrella	fulva		Mem. New York Bot. Gard.	24:169	1972
Psathyrella	fuscospora		Mem. New York Bot. Gard.	24:414	1972
Psathyrella	gruberi		Mem. New York Bot. Gard.	24:62	1972
Psathyrella	idahoensis		Mem. New York Bot. Gard.	24:179	1972
Psathyrella	lepidotooides		Mem. New York Bot. Gard.	24:49	1972
Psathyrella	mesocystis		Mem. New York Bot. Gard.	24:177	1972
Psathyrella	monticola		Mem. New York Bot. Gard.	24:200	1972
Psathyrella	mucrocystis		Mem. New York Bot. Gard.	24:373	1972
Psathyrella	naucoriooides		Mem. New York Bot. Gard.	24:246	1972
Psathyrella	nezperci		Mem. New York Bot. Gard.	24:265	1972
Psathyrella	oregonensis		Mem. New York Bot. Gard.	24:157	1972
Psathyrella	owyheensis		Mem. New York Bot. Gard.	24:174	1972
Psathyrella	pallida		Mem. New York Bot. Gard.	24:216	1972
Psathyrella	payettensis		Mem. New York Bot. Gard.	24:234	1972
Psathyrella	populorum		Mem. New York Bot. Gard.	24:434	1972
Psathyrella	praetenuis		Mem. New York Bot. Gard.	24:110	1972
Psathyrella	pseudolimicola		Mem. New York Bot. Gard.	24:262	1972
Psathyrella	pseudotrepida		Mem. New York Bot. Gard.	24:409	1972
Psathyrella	psilocyboides		Mem. New York Bot. Gard.	24:401	1972
Psathyrella	quercicoia		Mem. New York Bot. Gard.	24:367	1972
Psathyrella	roothaanensis	var. bonnerensis	Mem. New York Bot. Gard.	24:312	1972
Psathyrella	rufogrisea	var. riparia	Mem. New York Bot. Gard.	24:207	1972
Psathyrella	rufogrisea	var. riparia	Mem. New York Bot. Gard.	24:206	1972
Psathyrella	salictaria		Mem. New York Bot. Gard.	24202	1972
Psathyrella	stuntzii		Mem. New York Bot. Gard.	24:251	1972
Psathyrella	subalpina		Mycoiogia	42:130	1950
Psathyrella	subcaespitosa		Mem. New York Bot. Gard.	24:228	1972
Psathyrella	sublongipes		Mem. New York Bot. Gard.	24:247	1972
Psathyrella	subnuda	var. velosa	Mem. New York Bot. Gard.	24:139	1972

Appendix 2. References to publication of new taxa (type specimens) from the Columbia Basin deposited in the University of Michigan Herbarium (MICH)

GENUS	SPECIES	INFRA SPECIES	Journal/Book	VOL.:PG	YEAR
Psathyrella	subradicata		Mem. New York Bot. Gard.	24:143	1972
Psathyrella	uskensis		Mem. New York Bot. Gard.	24:338	1972
Psathyrella	vartata		Mem. New York Bot. Gard.	24:238	1972
Psathyrella	vesiculocystis		Mem. New York Bot. Gard.	24:349	1972
Psathyrella	wapinitaensis		Mem. New York Bot. Gard.	24:160	1972
Psathyrella	warrenensis		Mem. New York Bot. Gard.	24:416	1972
Psilocybe	subborealis		Mycotaxon	7:517	1978
Puccinia	angelicae		Bull. Washburn Lab. Nat. Hist.	1:3	1884
Puccinia	chelonis		Hedwigia	36: 297	1897
Puccinia	gemella		Syd. Monogram Uredin	1:541	1903
Puccinia	phaceliae		Monogr. Uredinearum	1:314	1904
Puccinia	sejuncta		J. Mycol.	1: 326	1903
Rhizopogon	abietis		Mem. New York Bot. Gard.	14:93	1966
Rhizopogon	albidus		Mem. New York Bot. Gard.	14:155	1966
Rhizopogon	albiroseus		Mem. New York Bot. Gard.	14:91	1966
Rhizopogon	alkalivirens		Mem. New York Bot. Gard.	14:48	1966
Rhizopogon	alpestris		Mem. New York Bot. Gard.	14:123	1966
Rhizopogon	anomalus		Mem. New York Bot. Gard.	14:32	1966
Rhizopogon	arenicola		Mem. New York Bot. Gard.	14:123	1966
Rhizopogon	argillaceus		Mem. New York Bot. Gard.	14:114	1966
Rhizopogon	argillascens		Mem. New York Bot. Gard.	14:128	1966
Rhizopogon	atroviolaceus		Mem. New York Bot. Gard.	14:37	1966
Rhizopogon	aurantiacus		Mem. New York Bot. Gard.	14:116	1966
Rhizopogon	avellaneitectus		J. Elisha Mitchell Sci. Soc.	84:274	1968
Rhizopogon	brunneicolor		Mem. New York Bot. Gard.	14:106	1966
Rhizopogon	brunneifibrillosus		Mem. New York Bot. Gard.	14:79	1966
Rhizopogon	butyraceus		Mem. New York Bot. Gard.	14:130	1966
Rhizopogon	chamaleontinus		J. Elisha Mitchell Sci. Soc.	84:276	1968
Rhizopogon	dnerascens		Mem. New York Bot. Gard.	14:148	1966
Rhizopogon	clavitisporus		Mem. New York Bot. Gard.	14:52	1966
Rhizopogon	colossus		Mem. New York Bot. Gard.	14:86	1966
Rhizopogon	cusickiensis		Mem. New York Bot. Gard.	14:137	1966
Rhizopogon	cylindrisporus		Mem. New York Bot. Gard.	14:129	1966
Rhizopogon	deceptivus		Mem. New York Bot. Gard.	14:134	1966
Rhizopogon	defectus		Mem. New York Bot. Gard.	14:131	1966
Rhizopogon	diabolicus		Mem. New York Bot. Gard.	14:64	1966
Rhizopogon	ellenae		Pap. Michigan Acad. Sci.	14:43	1966
Rhizopogon	evadens		Mem. New York Bot. Gard.	14:151	1966
Rhizopogon	evadens	var. subalpinus	Mem. New York Bot. Gard.	14:153	1966
Rhizopogon	fallax		Mem. New York Bot. Gard.	14:39	1966
Rhizopogon	flavofibrillosus		Mem. New York Bot. Gard.	14:118	1966
Rhizopogon	florencianus		Mem. New York Bot. Gard.	14:72	1966
Rhizopogon	fragmentatus		Mem. New York Bot. Gard.	14:56	1966
Rhizopogon	fragrans		Mem. New York Bot. Gard.	14:71	1966
Rhizopogon	griseogleba		Mem. New York Bot. Gard.	14:52	1966
Rhizopogon	hawkeri		Mem. New York Bot. Gard.	14:83	1966
Rhizopogon	idahoensis		Mem. New York Bot. Gard.	14:43	1966
Rhizopogon	inquinatus		Mem. New York Bot. Gard.	14:66	1966
Rhizopogon	kauffmannii		Mem. New York Bot. Gard.	14:38	1966
Rhizopogon	laetiflavus		Mem. New York Bot. Gard.	14:110	1966
Rhizopogon	luteoalboides		Mem. New York Bot. Gard.	14:140	1966
Rhizopogon	luteoalbus		Mem. New York Bot. Gard.	14:109	1966
Rhizopogon	luteoloides		Mem. New York Bot. Gard.	14:126	1966
Rhizopogon	luteorubescens		Mem. New York Bot. Gard.	14:92	1966
Rhizopogon	lutescens		Mem. New York Bot. Gard.	14:62	1966

Appendix 2. References to publication of new taxa (type specimens) from the Columbia Basin deposited in the University of Michigan Herbarium (MICH)

GENUS	SPECIES	INFRA SPECIES	Journal/Book	VOL.:PG	YEAR
Rhizopogon	masonae		Mem. New York Bot. Gard.	14:154	1966
Rhizopogon	milleri		Mycopathol. Mycol. Appl.	26:389	1966
Rhizopogon	molligleba		Mem. New York Bot. Gard.	14:107	1966
Rhizopogon	monticola		Mem. New York Bot. Gard.	14:122	1966
Rhizopogon	muta bilis		Mem. New York Bot. Gard.	14:82	1966
Rhizopogon	obscurus		Mem. New York Bot. Gard.	14:149	1966
Rhizopogon	ochraceisporus		Mem. New York Bot. Gard.	14:62	1966
Rhizopogon	ochraceobrunnescens		Mem. New York Bot. Gard.	14:125	1966
Rhizopogon	ochraceorubens		Mem. New York Bot. Gard.	14:124	1966
Rhizopogon	ochroleucus		Mem. New York Bot. Gard.	14:132	1966
Rhizopogon	ochroleucoides		Mem. New York Bot. Gard.	14:95	1966
Rhizopogon	odoratus		Mem. New York Bot. Gard.	14:150	1966
Rhizopogon	olivaceofuscus		Mem. New York Bot. Gard.	14:66	1966
Rhizopogon	olivaceoluteus		Mem. New York Bot. Gard.	14:126	1966
Rhizopogon	oswaldii		Mem. New York Bot. Gard.	14:107	1966
Rhizopogon	parvulus		Mem. New York Bot. Gard.	14:64	1966
Rhizopogon	pedicellus		Mem. New York Bot. Gard.	14:41	1966
Rhizopogon	proximus		Mem. New York Bot. Gard.	14:150	1966
Rhizopogon	pseudoaffinis		Mem. New York Bot. Gard.	14:138	1966
Rhizopogon	pseudoalbus		Mem. New York Bot. Gard.	14:155	1966
Rhizopogon	pseudoroseolus		Mem. New York Bot. Gard.	14:89	1966
Rhizopogon	pseudovillosulus		Mem. New York Bot. Gard.	14:77	1966
Rhizopogon	quercicola.		Mem. New York Bot. Gard.	14:81	1966
Rhizopogon	rogersii		Mem. New York Bot. Gard.	14:73	1966
Rhizopogon	rubescens	var. ochraceous	Mem. New York Bot. Gard.	14:99	1966
Rhizopogon	rubescens	var. pallidimaculatus	Mem. New York Bot. Gard.	14:97	1966
Rhizopogon	rubescens	var. rileyi	Mem. New York Bot. Gard.	14:98	1966
Rhizopogon	rudus		Mem. New York Bot. Gard.	14:34	1966
Rhizopogon	salebrosum		Mem. New York Bot. Gard.	14:37	1966
Rhizopogon	semireticulatus		Mem. New York Bot. Gard.	14:33	1966
Rhizopogon	semitectus		J. Elisha Mitchell Sci. Soc.	84:279	1968
Rhizopogon	sordidus		Mem. New York Bot. Gard.	14:127	1966
Rhizopogon	subbadius		Mem. New York Bot. Gard.	14:41	1966
Rhizopogon	subcaeruleascens		Mem. New York Bot. Gard.	14:44	1966
Rhizopogon	subcaeruleascens	var. subpannous	Mem. New York Bot. Gard.	14:46	1966
Rhizopogon	subcaeruleascens	var. viridescens	Mem. New York Bot. Gard.	14:45	1966
Rhizopogon	subcinnamomeus		Mem. New York Bot. Gard.	14:63	1966
Rhizopogon	subciinus		Mem. New York Bot. Gard.	14:133	1966
Rhizopogon	subclavitisporus		Mem. New York Bot. Gard.	14:53	1966
Rhizopogon	subcroceus		Mem. New York Bot. Gard.	14:133	1966
Rhizopogon	subgelatinosus		Mem. New York Bot. Gard.	14:42	1966
Rhizopogon	sublateritius		Mem. New York Bot. Gard.	14:121	1966
Rhizopogon	subolivascens		Mem. New York Bot. Gard.	14:104	1966
Rhizopogon	subpurpurascens		Michigan Bot.	3:17	1964
Rhizopogon	subradicatus		Mem. New York Bot. Gard.	14:117	1966
Rhizopogon	subsalmarius		Mem. New York Bot. Gard.	14:142	1966
Rhizopogon	subsalmarius	var. griseolilascens	Mem. New York Bot. Gard.	14:145	1966
Rhizopogon	subsalmarius	var. persicinus	Mem. New York Bot. Gard.	14:144	1966
Rhizopogon	subsalmarius	var. roseitinctus	Mem. New York Bot. Gard.	14:143	1966
Rhizopogon	subsalmarius	var. similis	Mem. New York Bot. Gard.	14:145	1966
Rhizopogon	odus		Mem. New York Bot. Gard.	14:131	1966
Rhizopogon	umbrinoviolascens		Mem. New York Bot. Gard.	14:78	1966
Rhizopogon	variabilisporus		Michigan Bot.	3:18	1964
Rhizopogon	ventticisporus		Mem. New York Bot. Gard.	14:100	1966
Rhizopogon	vesiculosus		Mem. New York Bot. Gard.	14:65	1966

Appendix 2. References to publication of new taxa (type specimens) from the Columbia Basin deposited in the University of Michigan Herbarium (MICH)

GENUS	SPECIES		INFRA SPECIES	JOURNAL/BOOK	VOL.:PG	YEAR
Rhizopogon	villosa			Mem. New York Bot. Gard.	14:74	1966
Rhizopogon	vinicolor			Mem. New York Bot. Gard.	14:67	1966
Russula	brevipes	var.	acrior	Mycologia	56:223	1964
Russula	densifolia	'	cremeispora	Brittonia	14:276	1962
Russula	vinosa	ssp	occidentalis	Pap. Michigan Acad. Sci.	32:114	1948
Septogloea	salicis-fendlerianae			Mycologia	9:358	1917
Spathularia	flavida	var.	ramosa	Mycologia	47: 866	1955
Stigmopeltis	graminicola			Sydowia	6:442	1952
Suillus	albivelatus			Lloydia	28:121	1965
Suillus	borealis			Lloydia	28:123	1965
Suillus	flavo-granulatus			Lloydia	28:127	1965
Suillus	pallidiceps			Contr. Monogr. North Amer. Sp.	96	1964
Suillus	pseudobrevipes			Suillus		
Suillus	tomentosus			Contr. Monogr. North Amer. Sp.	46	1964
Tilletia	brevifaciens			Suillus		
Tilletia	fusca			Lloydia	28:134	1965
Tilletia	scrobiculata			Res. Stud. State Coll. Wash.	20:11	1952
Tricholoma	cystidiosum			J. Mycol.	3:55	1887
Tricholomopsis	fallax			Res. Stud. State Coll. Wash.	20:6	1952
Truncocolumella	citrina			Mycologia	33:14	1941
Typhula	idahoensis			Brittonia	12:48	1960
Vascellum	lloydianum			Brittonia	11:212	1959
Weraroa	coprophila			Mycologia	32:89	1940
Weraroa	nivalis			Bull. Mens. Soc. Linn. Soc. Bot.	43:410	1974
Xeromphalina	b runneola			L y o n		
				Mycopathol. Mycol. Appl.	26:394	1965
				Mycopathol. Mycol. Appl.	26:395	1965
				Mycologia	60:167	1968

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 205

Nutrition : Common Mycorrhizal Fungi

Sporocarp Type : Bolete

Genus	Species	Infraspecies	Host/Substrate
<i>Gastroboletus</i>	<i>turbanatus</i>		<i>Abies lasiocarpa</i> - <i>Tsuga mertensiana</i>

Sporocarp Type : False Truffle

Genus	Species	Infraspecies	Host/Substrate
Hysterangium	coriaceum		<i>Abies lasiocarpa</i> - <i>Tsuga mertensiana</i>
Hysterangium	coriaceum		<i>Tsuga mertensiana</i>
Leucopheles	spinispora		<i>Abies procera</i> - <i>Tsuga mertensiana</i>
Rhizopogon	atrovilaceus		<i>Tsuga mertensiana</i>
Rhizopogon	subsalmoneus		<i>Abies</i> - <i>Tsuga</i> - Pinus
Rhizopogon	subsalmoneus		<i>Tsuga mertensiana</i>
Thaxterogaster	pingue		<i>Abies lasiocarpa</i> - <i>Tsuga mertensiana</i>
Thaxterogaster	p i n g u e		<i>Tsuga mertensiana</i> - <i>Abies</i>

Sporocarp Type : Truffle

Genus	Species	Infraspecies	Host/Substrate
Hydnotrya	variiformis		<i>Abies lasiocarpa</i> - <i>Tsuga mertensiana</i>
Hydnotrya	vatiiformis		<i>Tsuga mertensiana</i>

Nutrition : Common Saprobic Fungi

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
<i>Calvatia</i>	fumosa		<i>Tsuga mertensiana</i>
<i>Calvatia</i>	fumosa	var. fumosa	<i>Abies</i> - <i>Tsuga</i> - <i>Pseudotsuga</i>

Nutrition : Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species	Infraspecies	Host/Substrate
Sautieria	monticola		<i>Abies lasiocarpa</i> - <i>Tsuga mertensiana</i>
Sautieria	monticola		<i>Tsuga mertensiana</i> - <i>Abies amabilis</i>
Hymenogaster	sublilacinus		<i>Tsuga mertensiana</i>
Hymenogaster	sublilacinus		<i>Abies</i> - <i>Tsuga mertensiana</i> - <i>Pseudotsuga menziesii</i>
Hysterangium	coriaceum		<i>Abies lasiocarpa</i> - <i>Tsuga mertensiana</i>
Leucogaster	cf. rubescens		<i>Abies</i> - <i>Tsuga</i>
Rhizopogon	evadens	var. subalpinus	<i>Tsuga mertensiana</i>
Rhizopogon	subpurpurascens		Pinus contorta - <i>Tsuga mertensiana</i>
Rhizopogon	subsalmoneus	var. subsalmoneus	<i>Abies</i> - <i>Tsuga</i>
Rhizopogon	subsalmoneus	var. subsalmoneus	<i>Abies</i> - <i>Tsuga</i>
Rhizopogon	subsalmoneus	var. subsalmoneus	<i>Abies</i> - <i>Tsuga</i>
Rhizopogon	subsalmoneus	var. subsalmoneus	<i>Abies</i> - <i>Tsuga</i>
Thaxterogaster	pingue		<i>Abies procera</i>

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 205

Nutrition : Mycorrhizal Fungi

Sporocarp Type : Truffle

Genus	Species	Infraspecies	Host/Substrate
Hydnotrya	variiformis		Tsuga mertensiana
Hydnotrya	variiformis		Tsuga mertensiana

Nutrition : Parasitic Fungi

Sporocarp Type : Polypores

Genus	Species	Infraspecies	Host/Substrate
Postia	placenta		wood, Tsuga mertensiana

Nutrition : Saproic Fungi

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
Calvatia	fumosa		Tsuga mertensiana

Cover type : 206

Nutrition : Common Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species	Infraspecies	Host/Substrate
Hymenogaster	sublilacinus		Abies lasiocarpa
Mycolevis	siccigleba		Abies lasiocarpa - Picea engelmannii
Mycolevis	siccigleba		Abies lasiocarpa - Picea engelmannii
Rhizopogon	ochraceorubens		Pinus albicaulis - Abies lasiocarpa
Rhizopogon	ochraceorubens		Abies - Picea
Rhizopogon	rubescens	var.	Pinus albicaulis - Abies lasiocarpa
Rhizopogon	rubescens	var.	Pinus albicaulis - Abies lasiocarpa
Rhizopogon	subcaerulescens	var.	Pinus albicaulis
Rhizopogon	subcaerulescens	var.	Pinus albicaulis
Thaxterogaster	pingue		Picea - Abies - Pinus
Thaxterogaster	pingue		Abies lasiocarpa
Thaxterogaster	pingue		Abies lasiocarpa
Thaxterogaster	pingue		Abies lasiocarpa
Truncocolumella	citrina		Abies - Picea

Sporocarp Type : Truffle

Genus	Species	Infraspecies	Host/Substrate
Geopora	cooper-i	f.	Abies lasiocarpa

Nutrition : Common Saproic Fungi

Sporocarp Type : False Truffle

Genus	Species	Infraspecies	Host/Substrate
Trappea	darker		Pinus albicaulis

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 206

Nutrition : Common Saprobic Fungi

Sporocarp Type : False Truffle

Sporocarp Type : Gilled Mushroom

Genus	Species		Infraspecies	Host/Substrate
Lentinellus	montanus			wood, Picea engelmannii

Nutrition : Common Saprobic Fungi ?

Sporocarp Type : Gilled Mushroom

Genus	Species		Infraspecies	Host/Substrate
Hygrophorus	inocybiformis			Picea - Thuja - Tsuga
Hygrophorus	monitcola			Abies - Picea

Nutrition : Mycorrhizal Fungi

Sporocarp Type : Bolete

Genus	Species		Infraspecies	Host/Substrate
Gastroboletus	subalpinus			Pinus albicaulis
Gastroboletus	turbinatus			Abies - Picea
Gastroboletus	t u r b i n a t u s			Abies - Picea
Gastroboletus	turbinatus			Abies - Picea
Gastroboletus	turbinatus			Abies - Picea
Gastroboletus	turbinatus			Picea engelmannii

Sporocarp Type : False Truffle

Genus	Species		Infraspecies	Host/Substrate
Gautieria	graveolens			Abies - Picea
Gautieria	graveolens			Abies - Picea
Gautieria	graveolens			Abies - Picea
Gautieria	graveolens			Abies - Picea
Gautieria	graveolens			Abies - Picea
Gautieria	graveolens			Abies - Picea
Gautieria	graveolens			Abies - Picea
Gautieria	graveolens			Abies - Picea
Martellia	subalpina			Abies lasiocarpa
Myco levis	siccigleba			Abies lasiocarpa - Picea engelmannii
Rhizopogon	abietis			Abies - Picea
Rhizopogon	evadens	rar.	evadens	Abies - Picea
Rhizopogon	evadens	tar.	evadens	Pinus albicaulis
Rhizopogon	evadens	rar.	evadens	Pinus albicaulis - Abies lasiocarpa
Rhizopogon	evadens	rar.	evadens	Pinus albicaulis - Abies lasiocarpa
Rhizopogon	evadens	tar.	evadens	Abies - Picea
Rhizopogon	evadens	rar.	evadens	Abies - Picea
Rhizopogon	evadens	rar.	evadens	Abies - Picea
Rhizopogon	evadens	rar.	evadens	Picea - Abies - Pinus ponderosa
Rhizopogon	evadens	rar.	evadens	Pinus albicaulis
Rhizopogon	luteoalbus		subalpinus	Abies - Picea - Pinus contorta
Rhizopogon	ochraceorubens			Abies - Picea
Rhizopogon	ochraceorubens			Abies - Picea
Rhizopogon	ochraceorubens			Pinus albicaulis - Abies lasiocarpa

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 206

Nutrition : Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species	Infraspecies	Host/Substrate
Rhizopogon	ochraceorubens		Abies - Picea
Rhizopogon	ochraceorubens		Abies - Picea
Rhizopogon	ochroleuroides		Picea - Pinus
Rhizopogon	ochroleucus		Pinus albicaulis - Abies lasiocarpa
Rhizopogon	pseudoaffinis		Abies - Picea
Rhizopogon	Nbescens	var. ochraceous	Abies - Picea
Rhizopogon	Nbescens	var. ochraceous	Pinus albicaulis - Abies lasiocarpa
Rhizopogon	Nbescens	var. ochraceous	Pinus albicaulis
Rhizopogon	Nbescens	var. ochraceous	Pinus albicaulis
Rhizopogon	rubescens	var. ochraceous	Pinus albicaulis - Abies lasiocarpa
Rhizopogon	Nbescens	var. ochraceous	Abies - Picea
Rhizopogon	Nbescens	var. ochraceous	Abies - Picea
Rhizopogon	rubescens	var. ochraceous	Pinus albicaulis - Pinus contorta
Rhizopogon	rubescens	var. rileyi	Picea - Pinus
Rhizopogon	rubescens	var. rileyi	Pinus albicaulis - Abies lasiocarpa
Rhizopogon	ru bescens	var. rubescens	Picea - Abies - Pinus
Rhizopogon	N bescens	var. rubescens	Abies - Picea
Rhizopogon	rubescens	var. rubescens	Pinus albicaulis - Abies lasiocarpa
Rhizopogon	rubescens	var. rubescens	Pinus albicaulis - Abies lasiocarpa
Rhizopogon	rubescens	var. rubescens	Abies - Picea
Rhizopogon	rubescens	var. rubescens	Abies - Picea
Rhizopogon	rubescens	var. rubescens	Abies - Picea - Pinus contorta
Rhizopogon	rubescens	var. rubescens	Abies - Picea
Rhizopogon	Nbescens	var. rubescens	Abies - Picea
Rhizopogon	Nbescens	var. rubescens	Pinus albicaulis - Pinus contorta
Rhizopogon	rubescens	var. subcaerulescens	Pinus albicaulis - Abies lasiocarpa
Rhizopogon	subcaerulescens	var. subcaerulescens	Abies - Picea
Rhizopogon	subcaerulescens	var. subcaerulescens	Abies - Picea
Rhizopogon	subcaerulescens	var. subcaerulescens	Abies - Picea
Rhizopogon	subcaerulescens	var. subpannosus	Pinus albicaulis
Rhizopogon	subsalmonius		Pinus albicaulis
Rhizopogon	subsalmonius		Pinus albicaulis - Abies lasiocarpa
Rhizopogon	subsalmonius		Abies - Picea
Rhizopogon	subsalmonius		Abies - Picea
Rhizopogon	vilosulus		Abies - Picea
Rhizopogon	vinicolor		Abies - Picea
Thaxterogaster	pingue		Abies - Picea - Pinus contorta
Thaxterogaster	pingue		Pinus albicaulis - Pinus contorta
Thaxterogaster	pingue		Abies lasiocarpa - Abies amabilis

Sporocarp Type : Gilled Mushroom

Genus	Species	Infraspecies	Host/Substrate
Macowanites	americanus		Pinus albicaulis

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 206

Nutrition : Mycorrhizal Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species		Infraspecies	Host/Substrate
Macowanites	americanus			Abies - Picea
Macowanites	fuscoviolaceus			Abies - Picea
Macowanites	lacteus			Abies - Picea
Macowanites	lilacinus			Abies - Picea
Macowanites	subrosaceus			Abies - Picea

Sporocarp Type : Truffle

Genus	Species		Infraspecies	Host/Substrate
Hydnotrya	michaelis			Abies lasiocarpa

Nutrition : Saprobic Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species		Infraspecies	Host/Substrate
Armillaria	celigata	var.	occidentalis	Abies - Picea
Lentinellus	montanus			Picea engelmannii
Lentinellus	montanus			wood, Picea engelmannii and Abies concolor
Lentinellus	montanus			wood, Picea engelmannii and Abies concolor
Lentinellus	montanus			wood, Abies lasiocarpa

Sporocarp Type : Puffball

Genus	Species		Infraspecies	Host/Substrate
Calvatia	fumosa			Abies - Picea
Calvatia	fumosa			Abies - Picea
Calvatia	subcretacea			Abies lasiocarpa
Calvatia	subcretacea			Abies - Picea

Cover type : 209

Nutrition : Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species		Infraspecies	Host/Substrate
Hymenogaster	sublilacinus			Pinus longaeva
Hymenogaster	sublilacinus			Pinus longaeva

Sporocarp Type : Truffle

Genus	Species		Infraspecies	Host/Substrate
Hydnotrya	michaelis			Pinus longaeva

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 210

Nutrition : Common Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species	Infraspecies	Host/Substrate
Hysterangium	coriaceum		Pseudotsuga menziesii
Leucophrlops	spinispora		Tsuga - Libocedrus
Leucophrlops	spinispora		Pseudotsuga menziesii - Larix
Mycolevis	siccigleba		Pseudotsuga menziesii - Larix
Rhizopogon	hawkeri		Pseudotsuga menziesii - Salix
Rhizopogon	hawkeri		Pseudotsuga menziesii
Rhizopogon	idahoensis		Pseudotsuga menziesii - Larix
Rhizopogon	olivaceofuscus		Pseudotsuga menziesii
Rhizopogon	vinicolor		Pseudotsuga menziesii - Abies lasiocarpa
Truncocolumella	citrina		Pseudotsuga menziesii
Truncocolumella	citrina		Pseudotsuga menziesii
Truncocolumella	citrina		Pseudotsuga menziesii
Truncocolumella	citrina		Pseudotsuga menziesii
Truncocolumella	citrina		Pseudotsuga menziesii
Truncocolumella	citrina,		Pseudotsuga menziesii - Tsuga heterophylla
Truncocolumella	citrina	var.	Pinus contorta - Pseudotsuga menziesii
Truncocolumella	citrina	var.	Pseudotsuga menziesii var. glauca
Truncocolumella	citrina		Pseudotsuga menziesii

Sporocarp Type : Truffle

Genus	Species		Infraspecies	Host/Substrate
Elaphomyces	granulatus			Tsuga heterophylla
Elaphomyces	granulatus			Pseudotsuga menziesii
Geopora	cooperi	f.	cooperi	Pseudotsuga menziesii
Geopora	cooperi	f.	cooperi	Pseudotsuga menziesii
Geopora	cooperi	f.	cooperi	Pseudotsuga menziesii

Nutrition : Common Saprobic Fungi

Sporocarp Type : False Truffle

Genus	Species		Infraspecies	Host/Substrate
Trappea	darkeri			Pseudotsuga menziesii

Sporocarp Type : Puffball

Genus	Species		Infraspecies	Host/Substrate
Bovista	pila			Pseudotsuga menziesii
Calvatia	subcretacea			Pseudotsuga menziesii
Endoptychum	agaricoides			Pseudotsuga menziesii - Juniperus - Populus - Alnus

Nutrition : Mycorrhizal Fungi

Sporocarp Type : Bolete

Genus	Species		Infraspecies	Host/Substrate
Leccinum	idahoense			Thuja - Pinus - Tsuga

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 210

Nutrition : Mycorrhizal Fungi

Sporocarp Type : Bolete

Sporocarp Type : Chanterelle

Genus	Species		Infraspecies	Host/Substrate
Cantharellus	floccosus	f.	rainieriensis	Thuja - Pinus monticola - Tsuga, sub-climax

Spoiocarp Type : False Truffle

Genus	Species		Infraspecies	Host/Substrate
Gautieria	graveolens			Pseudotsuga menziesii - Abies balsamia
Hysterangium	coriaceum			Tsuga - Libocedrus
Hysterangium	coriaceum			Pseudotsuga menziesii - Pinus - Abies
Hysterangium	coriaceum			Pseudotsuga menziesii
Hysterangium	coriaceum			Pseudotsuga menziesii
Hysterangium	coriaceum			Pseudotsuga menziesii - Tsuga
Leucogaster	rubescens			Pinus contorta - Pseudotsuga menziesii
Leucophleps	spinispora			Pseudotsuga menziesii
Leucophleps	spinispora			Pseudotsuga menziesii
Leucophleps	spinispora			Pseudotsuga menziesii - Larix
Protogautieria	lutea			Pseudotsuga menziesii - Larix
Rhizopogon	anomalus			Thuja - Pinus - Larix - Tsuga
Rhizopogon	avellaneitector			Pinus contorta - Pseudotsuga menziesii
Rhizopogon	colossus	var.	colossus	Pseudotsuga menziesii
Rhizopogon	cusickiensis			Pseudotsuga menziesii
Rhizopogon	diabolicus			Pseudotsuga menziesii
Rhizopogon	evadens	var.	evadens	Thuja - Tsuga
Rhizopogon	hawkeri			Pseudotsuga menziesii
Rhizopogon	hawkeri			Pseudotsuga menziesii - Betula
Rhizopogon	idahoensis			Pseudotsuga menziesii
Rhizopogon	idahoensis			Pseudotsuga menziesii
Rhizopogon	idahoensis			Pseudotsuga menziesii
Rhizopogon	idahoensis			Pseudotsuga menziesii
Rhizopogon	inquinatus			Pseudotsuga menziesii
Rhizopogon	luteoloides			Thuja - Tsuga
Rhizopogon	luteolus			Pseudotsuga menziesii - Betula
Rhizopogon	ochraceisporus			Pseudotsuga menziesii - Abies
Rhizopogon	ochroleuroides			Pseudotsuga menziesii - Pinus
Rhizopogon	olivaceofuscus			Pseudotsuga menziesii - Betula
Rhizopogon	olivaceofuscus			Tsuga - Libocedrus
Rhizopogon	olivaceofuscus			Pseudolsuga menziesii
Rhizopogon	parksii			Pseudotsuga menziesii - Betula
Rhizopogon	pseudovillosulus			Pseudotsuga menziesii - Pinus monticola
Rhizopogon	quercicola			Pinus contorta - Pseudotsuga menziesii
Rhizopogon	rubescens			Castanopsis chrysophylla
Rhizopogon	rubescens			Pinus contorta - Pseudotsuga menziesii
Rhizopogon	rubescens	var.	rileyi	Pseudotsuga menziesii - Betula
Rhizopogon	rubescens	var.	rileyi	Pinus contorta - Pseudotsuga menziesii
Rhizopogon	rubescens	var.	rubescens	Pseudotsuga menziesii
Rhizopogon	semitectus			Thuja - Tsuga
Rhizopogon	subareolatus			Pinus contorta - Pseudotsuga menziesii
Rhizopogon	subareolatus			Pseudotsuga menziesii
Rhizopogon	subareolatus			Pseudotsuga menziesii
Rhizopogon	subareolatus			Pseudotsuga menziesii
Rhizopogon	subareolatus			Pseudotsuga menziesii
Rhizopogon	subareolatus			Pseudotsuga menziesii - Pinus monticola

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 210

Nutrition : Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species		Infraspecies	Host/Substrate
Rhizopogon	subcaerulescens	var.	subpannosus	Tsuga - Libocedrus
Rhizopogon	subcaerulescens	var.	subpannosus	Pseudotsuga menziesii
Rhizopogon	subcaerulescens	var.	subpannosus	Pseudotsuga menziesii
Rhizopogon	subcaerulescens	var.	subpannosus	Pseudotsuga menziesii - Larix
Rhizopogon	vilosulus			Pseudotsuga menziesii
Rhizopogon	vilosulus			Pseudotsuga menziesii
Rhizopogon	vilosulus			Pseudotsuga menziesii - Betula
Rhizopogon	vilosulus			Pseudotsuga menziesii - Betula
Rhizopogon	vinicolor			Pseudotsuga menziesii
Rhizopogon	vinicolor			Pseudotsuga menziesii
Rhizopogon	vinicolor			Pseudotsuga menziesii
Rhizopogon	zelleri			Pseudotsuga menziesii
Truncocolumella	citrina	var.	separabilis	Pseudotsuga menziesii
Truncocolumella	citrina	var.	separabilis	Pseudotsuga menziesii

Sporocarp Type : Gilled Mushroom

Genus	Species		Infraspecies	Host/Substrate
Amanita	silvicola			Thuja - Tsuga
Lactarius	pallescens			Thuja - Tsuga
Pholiota	flavida	var.	graveolens	wood, Tsuga heterophylla
Pholiota	milleri			Pseudotsua menziesii - Thuja plicata - Tsuga heterophylla

Sporocarp Type : Truffle

Genus	Species		Infraspecies	Host/Substrate
Elaphomyces	granulatus			Tsuga heterophylla
Geopora	cooperi	f.	cooperi	Tsuga - Libocedrus
Geopora	cooperi	f.	cooperi	Pseudotsuga menziesii

Nutrition : Parasitic Fungi

Sporocarp Type : Polypores

Genus	Species		Infraspecies	Host/Substrate
Postia	placenta			Tsuga heterophylla
Postia	placenta			Pseudotsuga menziesii - Tsuga heterophylla

Nutrition : Saprobic (?) Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species		Infraspecies	Host/Substrate
Hygrophorus	pusillus			Thuja plicata - Tsuga heterophylla, 200 yr old

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 210

Nutrition : Saproic Fungi

Sporocarp Type : Cup Fungi

Genus	Species	Infraspecies	Host/ Substrate
Neournula	nordmanensis		Thuja plicata

Sporocarp Type : False Truffle

Genus	Species	Infraspecies	Host/Substrate
Trappea	darkeri		Pseudotsuga menziesii

Sporocarp Type : Gilled Mushroom

Genus	Species	Infraspecies	Host/Substrate
Clitocybe Psathyrella	albirhiza fulvoumbrina		Pseudotsuga menziesii Pseudotsuga menziesii - Populus tremuloides - Salix

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
Abstoma	citrina		Pseudotsuga menziesii
Bovista	plumbea		Pseudotsuga menziesii - Juniperus - Populus - Alnus
Calvatia	cyathiformis	f.	Pseudotsuga menziesii - Juniperus
Calvatia	cyathiformis	f.	Pseudotsuga menziesii - Juniperus
Calvatia	lloydii		Pseudotsuga menziesii
Calvatia	lvcoerdooides		Pseudotsuga menziesii - Populus

Cover type : 211

Nutrition : Common Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species	Infraspecies I	Host/Substrate
Leucophleps	spinispora		Abies concolor
Rhizoooaon	evadens	var.	Abies concolor

Nutrition : Common Saproic Fungi

Sporocarp Type : False Truffle

Genus	Species	Infraspecies	Host/Substrate
Trappea	darkeri		Abies concolor

Nutrition : Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species	Infraspecies	Host/Substrate
Leucophleps	spinispora		Abies concolor - Pinus flexilis
Rhizoooaon	bacillisorus		Abies concolor

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 211

Nutrition : Mycorrhizal Fungi

Sporocarp Type : False Truffle

Nutrition : Saprobic Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species		Infraspecies	Host/Substrate
Lentinellus	montanus			wood, Abies concolor

Cover type : 212

Nutrition : Mycorrhizal Fungi

Sporocarp Type : Bolete

Genus	Species		Infraspecies	Host/Substrate
Suillus	borealis			Larix

Sporocarp Type : False Truffle

Genus	Species		Infraspecies	Host/Substrate
Rhizopogon	ru bescens			Larix

Sporocarp Type : Gilled Mushroom

Genus	Species		Infraspecies	Host/Substrate
Pholiota	gruberi			Larix

Nutrition : Saprobic (?) Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species		Infraspecies	Host/Substrate
Hygrophorus	monitcola			Larix

Nutrition : Saprobic Fungi

Sporocarp Type : Cup Fungus

Genus	Species		Infraspecies	Host/Substrate
Spathularia	flavida	var.	ramosa	Larix - Pinus

Cover type : 213

Nutrition : Common Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species		Infraspecies	Host/Substrate
Leucopheles	spinispora			Abies grandis - Pseudotsuga menziesii
Rhizopogon	ellenae			Abies grandis
Rhizopogon	subcaerulescens	var.	subpannosus	Abies grandis
Rhizopogon	subcaerulescens	var.	subpannosus	Abies grandis - Pseudotsuga menziesii
Rhizopogon	villosulus			Abies grandis - Pseudotsuga menziesii
Thaxterogaster	pingue			Abies grandis - Pseudotsuga menziesii

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 213

Nutrition : Common Mycorrhizal Fungi

Sporocarp Type : False Truffle

Sporocarp Type : Truffle

Genus	Species		Infraspecies	Host/Substrate
Geopora	cooperi	f.	cooperi	Abies grandis - Pseudotsuga menziesii

Nutrition : Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species		Infraspecies	Host/Substrate
Rhizopogon	rubescens	var.	rubescens	Abies grandis

Cover type : 215

Nutrition : Common Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species		Infraspecies	Host/Substrate
Rhizopogon	evadens	var.	evadens	Pinus monticola

Nutrition : Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species		Infraspecies	Host/Substrate
Rhizopogon	cokeri			Pinus monticola
Rhizopogon	luteolus			Pinus monticola
Rhizopogon	luteorubescens			Pinus monticola
Rhizopogon	ochraceorubens	var.		Pinus monticola - Abies lasiocarpa
Rhizopogon	rubescens	var.	ochraceous	Pinus monticola - Abies lasiocarpa
Rhizopogon	subsalmoneus	var.	roseitinctus	Pinus monticola - Abies lasiocarpa

Sporocarp Type : Truffle

Genus	Species		Infraspecies	Host/Substrate
Hydnotrya	variiformis			Pinus monticola - Abies lasiocarpa

Nutrition : Parasitic Fungi

Sporocarp Type : Polypores

Genus	Species		Infraspecies	Host/Substrate
Anomoporia	bombycinia			Pinus monticola
Anomoporia	bombycinia			Pinus monticola
Anomoporia	bombycinia			Pinus monticola
Postia	placenta			wood, Pinus monticola
Postia	placenta			Pinus monticola
Postia	placenta			Pinus monticola
Postia	placenta			Pirius monticola

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 217

Nutrition : Common Saprobic Fungi

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
Calvatia	booniana		Populus tremuloides

Nutrition : Mycorrhizal Fungi

Sporocarp Type : Bolete

Genus	Species	Infraspecies	Host/Substrate
Leccinum	incarnatum		Populus tremuloides
Leccinum	incarnatum		Populus tremuloides

Nutrition : Saprobic Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species	Infraspecies	Host/Substrate
Lentinellus	truebloodii		Populus tremuloides
Psathyrella	fulvoumbrina		Populus tremuloides
Psathyrella	fulvoumbrina		Populus tremuloides
Psathyrella	fulvoumbrina		Populus tremuloides
Psathyrella	fulvoumbrina		Populus tremuloides
Psathyrella	nezpercii		Populus tremuloides

Cover type : 218

Nutrition : Common Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species	Infraspecies	Host/Substrate
Hysterangium	coriaceum		Pinus contorta
Rhizopogon	evadens		Pinus contorta
Rhizopogon	evadens	var.	Pinus contorta
Rhizopogon	evadens	var.	Pinus contorta
Rhizopogon	ochraceorubens		Pinus contorta
Rhizopogon	ochraceorubens		Pinus contorta
Rhizopogon	ochraceorubens		Pinus contorta
Rhizopogon	rubescens		Pinus contorta
Rhizopogon	rubescens	var.	Pinus contorta
Rhizopogon	rubescens	var.	Pinus contorta
Rhizopogon	subcitrinus		Pinus contorta - Abies
Rhizopogon	citrina		Pinus contorta
Truncocolumella			Pinus contorta

Sporocarp Type : Gilled Mushroom

Genus	Species	Infraspecies	Host/Substrate
Brauniellula	albipes		Pinus contorta
Brauniellula	albipes		Pinus contorta
Brauniellula	albipes		Pinus contorta

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 218

Nutrition : Common Saprobic Fungi

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
Calbovista	subsculpta		Pinus contorta
Calvatia	fumosa		Pinus contorta

Nutrition : Mycorrhizal Fungi

Sporocarp Type : Bolete

Genus	Species	Infraspecies	Host/Substrate
Suillus	pallidiceps		Pinus contorta
Suillus	pseudobrevipes		Pinus contorta
Suillus	pseudobrevipes		Pinus contorta

Sporocarp Type : False Truffle

Genus	Species	Infraspecies	Host/Substrate
Gautieria	graveolens		Pinus contorta
Hymenogaster	sublilacinus		Pinus contorta
Hysterangium	coriaceum		Pinus contorta
Martellia	foetens		Pinus contorta
Rhizopogon	abietis		Pinus contorta
Rhizopogon	argillascens		Pinus contorta
Rhizopogon	ellenae		Pinus contorta
Rhizopogon	evadens		Pinus contorta
Rhizopogon	evadens		Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	evadens	var. evadens	Pinus contorta
Rhizopogon	luteorubescens		Pinus contorta
Rhizopogon	luteoalbus		Pinus contorta
Rhizopogon	luteoalbus		Pinus contorta
Rhizopogon	luteoalbus		Pinus contorta
Rhizopogon,	luteorubescens		Pinus contorta
Rhizopogon	luteorubescens		Pinus contorta
Rhizopogon	ochraceorubens		Pinus contorta
Rhizopogon	ochraceorubens		Pinus contorta
Rhizopogon	ochraceorubens		Pinus contorta
Rhizopogon	ochraceorubens		Pinus contorta
Rhizopogon	ochraceorubens		Pinus contorta
Rhizopogon	ochraceorubens		Pinus contorta
Rhizopogon	ochraceorubens		Pinus contorta

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 218

Nutrition : Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species		Infraspecies	Host/Substrate
Rhizopogon	ochraceorubens			<i>Pinus contorta</i>
Rhizopogon	ochraceorubens			<i>Pinus contorta</i>
Rhizopogon	ochraceorubens			<i>Pinus contorta</i>
Rhizopogon	ochraceorubens			<i>Pinus contorta</i>
Rhizopogon	ochraceorubens			<i>Pinus contorta</i>
Rhizopogon	ochraceorubens			<i>Pinus contorta</i>
Rhizopogon	ochraceorubens			<i>Pinus contorta</i>
Rhizopogon	ochraceorubens			<i>Pinus contorta - Abies - Picea</i>
Rhizopogon	ochraceorubens			<i>Pinus contorta - Abies - Picea</i>
Rhizopogon	rubescens			<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	ochraceous	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	ochraceous	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	ochraceous	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	rubescens	var.	rileyi	<i>Pinus contorta</i>
Rhizopogon	subbadius	var.	subcaerulescens	<i>Pinus contorta</i>
Rhizopogon	subcaerulescens	var.	subcaerulescens	<i>Pinus contorta</i>
Rhizopogon	subcaerulescens	var.	subcaerulescens	<i>Pinus contorta</i>
Rhizopogon	subcaerulescens	var.	subcaerulescens	<i>Pinus contorta</i>
Rhizopogon	subcaerulescens	var.	subcaerulescens	<i>Pinus contorta</i>
Rhizopogon	subcaerulescens	var.	subcaerulescens	<i>Pinus contorta</i>
Rhizopogon	subcaerulescens	var.	subcaerulescens	<i>Pinus contorta - Abies - Picea</i>
Rhizopogon	subcroceus			<i>Pinus contorta</i>
Rhizopogon	subcroceus			<i>Pinus contorta</i>
Rhizopogon	subgelatinosus			<i>Pinus contorta</i>
Rhizopogon	subsalmarius			<i>Pinus contorta</i>
Rhizopogon	subsalmarius			<i>Pinus contorta</i>
Rhizopogon	variabilisporus aff.			<i>Pinus contorta</i>
Rhizopogon	vesiculosus			<i>Pinus contorta</i>
Rhizopogon	vesiculosus			<i>Pinus contorta</i>
Rhizopogon	villusulus			<i>Pinus contorta</i>
Rhizopogon	vinicolor			<i>Pinus contorta</i>

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 218

Nutrition : Mycorrhizal Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species	Infraspecies	I	Host/Substrate
Brauniellula	albipes			<i>Pinus contorta</i>
Brauniellula	albipes			<i>Pinus contorta</i>
Brauniellula	albipes			<i>Pinus contorta</i>
Brauniellula	albipes			<i>Pinus contorta</i>
Brauniellula	~albipes			<i>Pinus contorta</i>
Brauniellula	albipes			<i>Pinus contorta</i>
Brauniellula	albipes			<i>Pinus contorta</i>
Brauniellula	albipes			<i>Pinus contorta</i>
Brauniellula	leucosark			<i>Pinus contorta</i>
Crepidotus	payettensis			wood, <i>Pinus contorta</i>
Hebeloma	stanleyense			<i>Pinus contorta</i>
Lactarius	deliciosus	var.	areolatus	<i>Pinus contorta</i>
Lactarius	deliciosus	var.	areolatus	<i>Pinus contorta</i>
Macowanites	americanus			<i>Pinus contorta</i>
Macowanites	americanus			<i>Pinus contorta</i>
Macowanites	fulvescens			<i>Pinus contorta - Picea</i>
Macowanites	pinicola			<i>Pinus contorta</i>
Pholiota	malicola	var.	macropoda	wood, <i>Pinus contorta</i>

Nutrition : Saprobic Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species	Infraspecies	Host/Substrate
Psathyrella	stuntzii		<i>Pinus contorta - Abies</i>

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
Bovista	pila		<i>Pinus contorta - cheat grass</i>
Bovista	pila		<i>Pinus contorta</i>
Bovista	plumbea		<i>Pinus contorta - Pinus ponderosa - Alnus - Salix</i>
Bovista	plumbea		<i>Pinus contorta - Populus - Artemesia</i>
Calbovista	subsculpta	var.	<i>Pinus contorta - cheat grass</i>
Cal bovista	subsculpta	fumosa	<i>Pinus contorta</i>
Calvatia	fumosa	var.	<i>Pinus contorta</i>
Calvatia	subcretacea	fumosa	<i>Pinus contorta</i>
Calvatia	subcretacea		<i>Pinus contorta</i>

Cover type : 219

Nutrition : Common Mycorrhizal Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species	Infraspecies	Host/Substrate
Macowanites	americanus		<i>Pinus flexilis</i>

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 219

Nutrition : Saprobic Fungi

Sporocarp Type : Puffball

Genus	Species		Infraspecies	Host/Substrate
<i>Calvatia</i>	<i>subcretacea</i>			<i>Pinus flexilis</i>

Cover type : 235

Nutrition : Mycorrhizal Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species		Infraspecies	Host/Substrate
<i>Crepidotus</i>	<i>sububer</i>			<i>Populus</i> (cottonwood)
<i>Lactarius</i>	<i>circellatus</i>	var.	<i>borealis</i>	<i>Populus</i> (cottonwood)
<i>Lactarius</i>	<i>circellatus</i>	var.	<i>borealis</i>	<i>Populus</i> - <i>Betula</i>

Nutrition : Saprobic Fungi

Sporocarp Type : Coral Fungi

Genus	Species		Infraspecies	Host/Substrate
<i>Clavicorona</i>	<i>divaricata</i>			<i>Populus</i> (cottonwood)

Sporocarp Type : Gilled Mushroom

Genus	Species		Infraspecies	Host/Substrate
<i>Psathyrella</i>	<i>naucorioides</i>			<i>Populus</i> (cottonwood)
<i>Psathyrella</i>	<i>naucorioides</i>			<i>Populus</i> (cottonwood)
<i>Psathyrella</i>	<i>praetenuis</i>			<i>Populus</i> (cottonwood)
<i>Psathyrella</i>	<i>variata</i>			<i>Populus</i> (cottonwood)

Sporocarp Type : Puffball

Genus	Species		Infraspecies	Host/Substrate
<i>Calvatia</i>	<i>booniana</i>			<i>Populus</i> (cottonwood)
<i>Endoptychum</i>	<i>depressum</i>			<i>Populus</i> (cottonwood)

Cover type : 237

Nutrition : Common Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species		Infraspecies	Host / Substrate
<i>Rhizopogon</i>	<i>evadens</i>	var.	<i>evadens</i>	<i>Pinus</i> ponderosa
<i>Rhizopogon</i>	<i>idahoensis</i>			<i>Pinus</i> ponderosa
<i>Rhizopogon</i>	<i>occidentalis</i>			<i>Pinus</i> ponderosa
<i>Rhizopogon</i>	<i>occidentalis</i>			<i>Pinus</i> ponderosa
<i>Rhizopogon</i>	<i>occidentalis</i>			<i>Pinus</i> ponderosa

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 237

Nutrition : Common Saprobic Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species	Infraspecies	Host/Substrate
Lentinus	ponderosus		wood, <i>Pinus ponderosa</i>

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
<i>Calvatia</i>	<i>cyathiformis</i>	f.	<i>Pinus ponderosa</i> - cheat grass
<i>Endopterygium</i>	<i>agaricoides</i>		<i>Pinus ponderosa</i>

Nutrition : Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species	Infraspecies	Host/Substrate
Hysterangium	crassirhachis		<i>Pinus ponderosa</i> - <i>Pseudotsuga menziesii</i>
Hysterangium	separabile		<i>Pinus ponderosa</i>
Melanogaster	ambiguus		<i>Abies</i> - <i>Pinus ponderosa</i>
Rhizopogon	fragrans		<i>Pinus ponderosa</i> - <i>Pseudotsuga menziesii</i>
Rhizopogon	idahoensis		<i>Pinus ponderosa</i>
Rhizopogon	idahoensis		<i>Pinus ponderosa</i>
Rhizopogon	idahoensis		<i>Pinus ponderosa</i>
Rhizopogon	<i>occidentalis</i>		<i>Pinus ponderosa</i>
Rhizopogon	occidentalis		<i>Pinus ponderosa</i>
Rhizopogon	occidentalis		<i>Pinus ponderosa</i>
Rhizopogon	occidentalis		<i>Pinus ponderosa</i>
Rhizopogon	occidentalis		<i>Pinus ponderosa</i>
Rhizopogon	occidentalis		<i>Pinus ponderosa</i>
Rhizopogon	occidentalis		<i>Pinus ponderosa</i>
Rhizopogon	ochraceorubens		<i>Pinus ponderosa</i> - <i>Pseudotsuga menziesii</i>
Rhizopogon	ochroleucoides		<i>Pinus ponderosa</i>
Rhizopogon	rubescens	rar.	<i>Pinus ponderosa</i> - <i>Pseudotsuga menziesii</i>
Rhizopogon	rubescens	rar.	<i>Pinus ponderosa</i> - <i>Pseudotsuga menziesii</i>
Rhizopogon	rubescens	rar.	<i>Pinus ponderosa</i> - <i>Pseudotsuga menziesii</i>
Rhizopogon	semireticulatus		<i>Pinus ponderosa</i>
Rhizopogon	<i>sordidus</i>		<i>Pinus ponderosa</i>
Rhizopogon	subcroceus		<i>Pinus ponderosa</i>
Rhizopogon	<i>sublateritius</i>		<i>Pinus ponderosa</i>
Rhizopogon	subradicatus		<i>Pinus ponderosa</i>
Rhizopogon	villosulus		<i>Pinus ponderosa</i> - <i>Pseudotsuga menziesii</i>
Rhizopogon	villosulus		<i>Pinus ponderosa</i> - <i>Pseudotsuga menziesii</i>
Rhizopogon	vilosus		<i>Pinus ponderosa</i> - <i>Pseudotsuga menziesii</i>
Rhizopogon	<i>vulgaris</i>		<i>Pinus ponderosa</i> - <i>Pinus contorta</i> seedlings

Sporocarp Type : Gilled Mushroom

Genus	Species	Infraspecies	Host/Substrate
Leucopaxillus	<i>septentrionalis</i>		<i>Pinus ponderosa</i>
Leucopaxillus	<i>septentrionalis</i>		<i>Pinus ponderosa</i>

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 237

Nutrition : Saproic (?) Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species	Infraspecies	Host/Substrate
Hygrophorus	ellenae		Pinus ponderosa
Hygrophorus	ellenae		Pinus ponderosa
Hygrophorus	ellenae		Pinus ponderosa

Nutrition : Saproic Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species	Infraspecies	Host/Substrate
Clitocybe	mutabilis		Pinus ponderosa - Pseudotsuga menziesii
Lentinus	ponderosus		wood, Pinus ponderosa
Lentinus	ponderosus		wood, Pinus ponderosa
Lentinus	ponderosus		Pinus ponderosa

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
Bovista	plumbea		Pinus ponderosa
Calvatia	candida		Pinus ponderosa - cheat grass
Calvatia	cyathiformis	f.	Pinus ponderosa - cheat grass
Calvatia	fragilis	fragilis	Pinus ponderosa - cheat grass
Calvatia	sculpta		Pinus ponderosa

Cover type : 238

Nutrition : Saproic Fungi

Sporocarp Type : Puffball

Genus	Species	Infraspecies	HosUSubstrate
Abstoma	townei		grass - Juniperus

Cover type : 239

Nutrition : Common Mycorrhizal Fungi

Sporocarp Type : Truffle

Genus	Species	Infraspecies	HosUSubstrate
Geopora	cooperi	f. gilkeyae	Pinus monophylla

Nutrition : Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species	Infraspecies	HosUSubstrate
Sclerogaster	xerophilus		Pinus monophylla
Sclerogaster	xerophilus		Pinus monophylla

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : 239

Nutrition : Mycorrhizal Fungi

Sporocarp Type : Truffle

Genus	Species	Infraspecies	Host/Substrate
Balsamia	platyspora		<i>Pinus</i> monophylla
Balsamia	platyspora		<i>Pinus</i> monophylla
Balsamia	platyspora		<i>Pinus</i> monophylla
Genabea	cerebriformis		<i>Pinus</i> monophylla

Cover type : SRM 104

Nutrition : Common Saprobic Fungi

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
Endoptychum	agaricoides		<i>Purshia</i> tridentata

Nutrition : Saprobic Fungi

Sporocarp Type : Puffball

Genus	Species	Infraspecies	HosUSubstrate
Abstoma	townei		<i>Purshia</i> tridentata - cheat grass

Cover type : SRM 107

Nutrition : Saprobic Fungi

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
Calvatia	booniana		<i>Juniperus</i>
Calvatia	booniana		<i>Juniperus</i> - cheat grass
Calvatia	booniana		<i>Juniperus</i>
Calvatia	booniana		<i>Juniperus</i>
Calvatia	lloydii		<i>Juniperus</i> - Snowberry - Arnica grass
Calvatia	pallida		<i>Juniperus</i> - grass

Cover type : SRM 110

Nutrition : Saprobic Fungi

Sporocarp Type : Puffball

Genus	Species	Infraspecies	HosUSubstrate
Bovista	plumbea		<i>Pinus</i> ponderosa - Artemesia - cheat grass

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : SRM 300

Nutrition : Common Mycorrhizal Fungi

Sporocarp Type : False Truffle

Genus	Species		Infraspecies	Host/Substrate
Rhizopogon	subcaerulescens	var.	subcaerulescens	grass

Sporocarp Type : Puffball

Genus	Species		Infraspecies	Host/Substrate
Endoptychum	agaricoides			cheat grass - <i>Prunus virginiana</i>

Nutrition : Common Saprobic Fungi

Sporocarp Type : Puffball

Genus	Species		Infraspecies	Host/Substrate
Abstoma	townei			cheat grass
Bovista	plumbea			grass
Bovista	plumbea			grass
Bovista	plumbea			grass
Endoptychum	agaricoides			cheat grass
Endoptychum	agaricoides			cheat grass
Endoptychum	agaricoides			cheat grass
Endoptychum	agaricoides			cheat grass
Endoptychum	agaricoides			cheat grass
Vascellum	lloydianum			grass
Vascellum	lloydianum			grass

Nutrition : Mycorrhizal Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species		Infraspecies	Host/Substrate
Chroogomphus	pseudovinicolor			grass

Sporocarp Type : Puffball

Genus	Species		Infraspecies	Host/Substrate
Endoptychum	agaricoides			grass

Nutrition : Parasitic Fungi

Sporocarp Type : Coral Fungi

Genus	Species		Infraspecies I	Host/Substrate
Typhula	idahoensis			grass

Sporocarp Type : Imperfect Fungi

Genus	Species		Infraspecies	Host/Substrate
Stigmopeltis	graminicola	.		Elymus glauca

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : SRM 300

Nutrition : Parasitic Fungi

Sporocarp Type : Imperfect Fungi

Sporocarp Type : Smut Fungi

Genus	Species	Infraspecies	Host/Substrate
Tilletia	brevifaciens		Agropyron intermedium ovaries
Tilletia	fusca		Festuca microstachya ovaries
Tilletia	fusca		Festuca octoflora ovaries
Tilletia	fusca		Festuca pacifica ovaries
Tilletia	scrobiculata		Poasecunda
Tilletia	scrobiculata		Poa secunda

Nutrition : Saprobic Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species	Infraspecies	Host/Substrate
Clitocybe	pseudomarginella		grass - lichens
Psathyrella	owyheensis		grass
Psathyrella	warrenensis		grass

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
Abstoma	t o w n e i		cheat grass
Abstoma	townei		grass
Bovista	m i n o r		cheat grass
Bovista	plumbea		grass
B o v i s t a	plumbea		grass
Bovista	plumbea		cheat grass
Bovista	plumbea		cheat grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		cheat grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		grass
Bovista	plumbea		cheat grass
Bovista	plumbea		cheat grass
Bovistella	echinella		grass
Bovistella	echinella		grass

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : SRM 300

Nutrition : Saproic Fungi

Sporocarp Type : Puffball

Genus	Species		Infraspecies	Host/Substrate
Calbovista	subsculpta			grass
Calvatia	bovista			grass
Calvatia	cyathiformis	var.	bovista	cheat grass
Calvatia	cyathiformis			grass
Calvatia	cyathiformis			cheat grass
Calvatia	subcretacea			grass
Calvatia	tatrensis			grass
Calvatia	utriformis			grass
Calvatia	utriformis			grass
Montagnea	arenaria			cheat grass

Genus	Species		Infraspecies	Host/Substrate
Geopora	clausa			Cercocarpus ledifolius
Geopora	clausa			Cercocarpus ledifolius

Nutrition : Saproic Fungi

Sporocarp Type : Puffball

Genus	Species		Infraspecies	Host/Substrate
Calbovista	subsculpta			Cercocarpus lediofolius, dead
Calvatia	booniana			Cercocarpus ledifolius - Juniperus
Calvatia	booniana			Cercocarpus ledifolius

Cover type : SRM 400

Nutrition : Common Saproic Fungi

Sporocarp Type : Puffball

Genus	Species		Infraspecies	Host/Substrate
Abstoma	townei			Artemesia - cheat grass - Juniperus - Salix - Populus
Bovista	plumbea			Artemesia tridentata - grass
Bovista	plumbea			Artemesia - grass
Bovista	plumbea			Artemesia - grass
Calvatia	cyathiformis			Artemesia - cheat grass
Catvatia	cyathiformis			Artemesia tridentata - cheat grass
Catvatia	cyathiformis			Artemesia
Calvatia	cyathiformis	f.	'cyathiformis fragilis	Artemesia - cheat grass
Calvatia	fumosa			Artemesia - cheat grass
Calvatia	arenaria			Artemesia
M o n t a g n e a				

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : SRM 400

Nutrition : Mycorrhizal Fungi

Sporocarp Type : Gilled Mushroom

Genus	Species	Infraspecies	Host/Substrate
Amanita	armillariformis		Artemisia - Myosurus aristata
Amanita	malheurensis		Sarcobatus vermiculatus
Amanita	malheurensis		Chrysothamnus

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
Calvatia	cyathiformis		Artemesia
Endoptychum	agaricoides		Artemesia
Endoptychum	agaricoides		Artemesia
Endoptychum	agaricoides		Artemesia tridentata
Endoptychum	agaricoides		Artemesia tridentata
Endoptychum	agaricoides		Artemesia tridentata
Endoptychum	agaricoides		Artemesia tridentata
Endoptychum	agaricoides		Artemesia tridentata
Endoptychum	agaricoides		Artemesia tridentata
Endoptychum	agaricoides		Artemesia tridentata
Endoptychum	agaricoides		Artemesia tridentata - cheat grass
Endoptychum	agancoides		Artemesia
Endoptychum	agaricoides		Artemesia
Endoptychum	agaricoides		Artemesia tridentata - Purshia
Endoptychum	agaricoides		Artemesia - cheat grass
Endoptychum	agaricoides		Artemesia - cheat grass
Endoptychum	agaricoides		Artemesia
Endoptychum	agaricoides		Artemesia - cheat grass
Endoptychum	agaricoides		Artemesia - cheat grass
Endoptychum	agaricoides		Artemesia
Endoptychum	agaricoides		Artemesia - Sarcobatus
Endoptychum	agaricoides		Artemesia - Chrysothamnus
Endoptychum	agaricoides		Artemesia - Chrysothamnus - roses
Endoptychum	agaricoides		Artemesia - Chrysothamnus - roses
Endoptychum	agaricoides		Artemesia - grass

Nutrition : Saprobic Fungi

Sporocarp Type : Birds Nest

Genus	Species	Infraspecies	Host/Substrate
Cyathus	olla	'f.	Artemesia, dead twigs
Cyathus	olla	f.	Sarcobatus vermiculatus

Sporocarp Type : Puff Ball

Genus	Species	Infraspecies	Host/Substrate
Bovistella	leucoderma		Artemesia

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
Abstoma	plumbea		Artemesia - grass

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : SRM 400

Nutrition : Saprobic Fungi

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
Abstoma	townei		Artemesia - grass
Abstoma	townei		Artemesia tridentata
Abstoma	townei		Artemesia tridentata - cheat grass
Abstoma	townei		Artemesia
Abstoma	townei		Artemesia
Abstoma	townei		Artemesia
Bovista	dakotensis		Artemesia - grass
Bovista	dakotensis		Artemesia - grass
Bovista	leucoderma		Artemesia - Chrysothamnus - Tetradymia
Bovista	leucodetma		Artemesia
Bovista	leucoderma		Artemesia - cheat grass
Bovista	leucoderma		Artemesia
Bovista	leucoderma		Sarcobatus
Bovista	minor		Artemesia - cheat grass
Bovista	minor		Artemesia - cheat grass
Bovista	pila		Artemesia - cheat grass
Bovista	plumbea		Artemesia tridentata - grass
Bovista	plumbea		Attemesia - conifers
Bovista	plumbea		Artemesia - grass
Bovista	plumbea		Artemesia
Bovista	plumbea		Artemesia tridentata - cheat grass
Bovista	plumbea		Artemesia tridentata - cheat grass
Bovista	plumbea		Attemesia tridentata - cheat grass
Bovista	plumbea		Artemesia tridentata - cheat grass
Bovista	plumbea		Artemesia tridentata - cheat grass
Bovista	plumbea		Artemesia tridentata - cheat grass
Bovista	plumbea		Artemesia - Juniperus
Bovista	plumbea		Artemesia tridentata - Chrysothamnus - cheat grass
Bovista	plumbea		Artemesia tridentata - cheat grass
Bovista	plumbea		Artemesia tridentata - cheat grass
Bovista	plumbea		Chrysothamnus
Bovista	plumbea		Artemesia
Bovista	plumbea		Artemesia
Bovista	plumbea		Artemesia - cheat grass
Bovista	plumbea		Artemesia - cheat grass
Bovista	plumbea		Atriplex confertifolia - Artemesia
Bovista	plumbea		Attemesia tridentata - grass
Bovista	plumbea		Artemesia ttidentata - grass
Bovista	plumbea		Artemesia tridentata - grass
Bovista	plumbea		Artemesia tridentata - grass
Bovista	plumbea		Artemesia - grass
Bovista	plumbea		Artemesia - blue grass
Bovista	plumbea		Artemesia - cheat grass
Bovista	plumbea		Artemesia - Chrysothamnus - cheat grass
Bovista	plumbea		Attemesia - grass
Bovista	plumbea		Artemesia tridentata - grass
Bovista	plumbea		Artemesia tridentata - cheat grass
Bovista	plumbea		Artemesia tridentata - cheat grass
Bovista	plumbea		Artemesia
Bovista	plumbea		Artemesia tridentata - grass

Appendix 3. Cover types for Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Cover type : SRM 400

Nutrition : Saproic Fungi

Sporocarp Type : Puffball

Genus	Species	Infraspecies	Host/Substrate
Bovista	plumbea		Artemesia tridentata - grass
Bovista	plumbea		Artemesia - grass
Bovista	plumbea		Artemesia - grass
Calbovista	subsculpta		Artemesia
Calvatia	booniana		Artemesia - grass
Calvatia	booniana		Artemesia - Juniperus
Calvatia	booniana		Artemesia tridentata - grass
Calvatia	booniana		Artemesia - Juniperus
Calvatia	booniana		Artemesia - Juniperus
Calvatia	booniana		Artemesia - Juniperus
Calvatia	booniana		Artemesia - cheat grass - Juniperus
Calvatia	candida		Artemesia - grass
Calvatia	cyathiformis		Artemesia tridentata - four wing saltbush - cheat grass
Calvatia	cyathiformis		Artemesia - Chrysothamnus
Calvatia	cyathiformis		Artemesia
Calvatia	cyathiformis		Artemesia - cheat grass - Juniperus - Salix
Calvatia	cyathiformis	f.	Artemesia - cheat grass
Calvatia	cyathiformis	f.	Artemesia tridentata - cheat grass
Calvatia	cyathiformis	f.	Artemesia - cheat grass
Calvatia	cyathiformis	f.	Artemesia tridentata - cheat grass
Calvatia	cyathiformis	f.	Artemesia - cheat grass
Calvatia	cyathiformis	f.	Artemesia tridentata - cheat grass
Calvatia	cyathiformis	f.	Artemesia tridentata - cheat grass
Calvatia	cyathiformis	f.	Artemesia tridentata - cheat grass
Calvatia	cyathiformis	f.	Artemesia tridentata - cheat grass
Calvatia	cyathiformis	f.	Artemesia - cheat grass
Calvatia	excipuliformis		Artemesia tridentata - cheat grass
Calvatia	fragilis		Artemesia tridentata - cheat grass
Calvatia	fragilis		Artemesia - cheat grass
Calvatia	fumosa		Artemesia - cheat grass
Calvatia	owyheensis		Artemesia
Calvatia	pallida		Artemesia - grass
Calvatia	utriformis		Artemesia
Calvatia	utriformis		Artemesia - grass
Montagnea	arenaria		Artemesia - Chrysothamnus
Montagnea	arenaria		Grayia spinosa
Montagnea	arenaria		Artemesia - cheat grass
Montagnea	arenaria		Artemesia
Podaxis	pistillaris		Artemesia

Appendix 4. Common Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Mycorrhizal Fungi

Boletes

Genus	Species	Infraspecies	State	County	Occurrences
Gastroboletus	turbinatus		ID	Adams	2
Gastroboletus	turbinatus		ID	Bonner	1
Gastroboletus	turbinatus		ID	Valley	23
Gastroboletus	turbinatus		OR	Deschutes	1
Gastroboletus	turbinatus		OR	Klamath	1
Gastroboletus	turbinatus		OR	Wasco	2
Gastroboletus	turbinatus		WA	Lewis	1
Suillus	albivelatus		ID	Bonner	26

False Truffles

Genus	Species	Infraspecies	State	County	Occurrences
Gautieria	graveolens		ID	Adams	5
Gautieria	graveolens		ID	Idaho	20
Gautieria	graveolens		ID	Valley	187
Hymenogaster	sublilacinus		ID	Adams	1
Hymenogaster	sublilacinus		ID	Bonner	1
Hymenogaster	sublilacinus		ID	Idaho	2
Hymenogaster	sublilacinus		ID	Valley	7
Hymenogaster	sublilacinus		NV	Elko	3
Hysterangium	coriaceum		ID	Adams	7
Hysterangium	coriaceum		ID	Bonner	16
Hysterangium	coriaceum		ID	Custer	1
Hysterangium	coriaceum		ID	Idaho	5
Hysterangium	coriaceum		ID	Valley	26
Hysterangium	coriaceum		OR	Deschutes	3
Hysterangium	coriaceum		OR	Klamath	1
Hysterangium	coriaceum		WA	Pend Oreille	15
Hysterangium	coriaceum		WA	Skamania	1
Leucogaster	rubescens		ID	Adams	1
Leucogaster	rubescens		ID	Bonner	16
Leucogaster	rubescens		ID	Custer	1
Leucogaster	rubescens		ID	Idaho	2
Leucogaster	rubescens		ID	Valley	15
Leucogaster	rubescens		OR	Wasco	2
Leucogaster	rubescens		WA	Klickitat	1
Leucophleps	spinispora		ID	Adams	3
Leucophleps	spinispora		ID	Bonner	7
Leucophleps	spinispora		ID	Idaho	2
Leucophleps	spinispora		ID	Valley	23
Leucophleps	spinispora		NV	Elko	2
Leucophleps	spinispora		OR	Jefferson	2
Leucophleps	spinispora		OR	Umatilla	1
Leucophleps	spinispora		WA	Pend Oreille	8
Martellia	idahoensis		ID	Valley	16
Mycolevis	siccigleba		ID	Bonner	3
Mycolevis	siccigleba		ID	Valley	7
Mycolevis	siccigleba		NV	Elko	1
Mycolevis	siccigleba		OR	Umatilla	2
Mycolevis	siccigleba		WA	Pend Oreille	1

Appendix 4. Common Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Mycorrhizal Fungi

False Truffles

<i>Rhizopogon</i>	<i>atrovilaceus</i>		ID	Bonner	1	
<i>Rhizopogon</i>	<i>atrovilaceus</i>		ID	Idaho	6	
<i>Rhizopogon</i>	<i>atrovilaceus</i>		ID	Valley	2	
<i>Rhizopogon</i>	<i>atrovilaceus</i>		OR	Klamath	1	
<i>Rhizopogon</i>	<i>diabolicus</i>		ID	Bonner	3	
<i>Rhizopogon</i>	<i>diabolicus</i>		ID	Idaho	1	
<i>Rhizopogon</i>	<i>diabolicus</i>		WA	Pend Oreille	4	
<i>Rhizopogon</i>	<i>ellenae</i>		ID	Valley	8	
<i>Rhizopogon</i>	<i>ellenae</i>		OR	Union	1	
<i>Rhizopogon</i>	<i>ellenae</i>		WA	Klickitat	2	
<i>Rhizopogon</i>	<i>ellenae</i>		WA	Pend Oreille	1	
<i>Rhizopogon</i>	<i>evadens</i>		ID	Custer	2	
<i>Rhizopogon</i>	<i>evadens</i>		ID	Idaho	4	
<i>Rhizopogon</i>	<i>evadens</i>		ID	Valley	5	
<i>Rhizopogon</i>	<i>evadens</i>		WA	Pend Oreille	1	
<i>Rhizopogon</i>	<i>evadens</i>	var.	<i>evadens</i>	ID	Adams	5
<i>Rhizopogon</i>	<i>evadens</i>	var.	<i>evadens</i>	ID	Boise	1
<i>Rhizopogon</i>	<i>evadens</i>	var.	<i>evadens</i>	ID	Bonner	15
<i>Rhizopogon</i>	<i>evadens</i>	var.	<i>evadens</i>	ID	Custer	15
<i>Rhizopogon</i>	<i>evadens</i>	var.	<i>evadens</i>	ID	Idaho	127
<i>Rhizopogon</i>	<i>evadens</i>	var.	<i>evadens</i>	ID	Valley	47
<i>Rhizopogon</i>	<i>evadens</i>	var.	<i>evadens</i>	WA	Klickitat	1
<i>Rhizopogon</i>	<i>evadens</i>	var.	<i>evadens</i>	WA	Pend Oreille	2
<i>Rhizopogon</i>	<i>hawkeri</i>		ID	Bonner	4	
<i>Rhizopogon</i>	<i>hawkeri</i>		ID	Valley	1	
<i>Rhizopogon</i>	<i>hawkeri</i>		OR	Wasco	1	
<i>Rhizopogon</i>	<i>hawkeri</i>		WA	Pend Oreille	5	
<i>Rhizopogon</i>	<i>idahoensis</i>		ID	Bonner	2	
<i>Rhizopogon</i>	<i>idahoensis</i>		ID	Boundary	2	
<i>Rhizopogon</i>	<i>idahoensis</i>		ID	Custer	2	
<i>Rhizopogon</i>	<i>idahoensis</i>		ID	Idaho	4	
<i>Rhizopogon</i>	<i>idahoensis</i>		ID	Valley	15	
<i>Rhizopogon</i>	<i>idahoensis</i>		WA	Pend Oreille	69	
<i>Rhizopogon</i>	<i>idahoensis</i>		WA	Spokane	1	
<i>Rhizopogon</i>	<i>luteolus</i>		ID	Adams	4	
<i>Rhizopogon</i>	<i>luteolus</i>		ID	Boise	1	
<i>Rhizopogon</i>	<i>luteolus</i>		ID	Bonner	1	
<i>Rhizopogon</i>	<i>luteolus</i>		ID	Idaho	2	
<i>Rhizopogon</i>	<i>luteolus</i>		ID	Valley	5	
<i>Rhizopogon</i>	<i>luteolus</i>		WA	Pend Oreille	1	
<i>Rhizopogon</i>	<i>occidentalis</i>		ID	Boise	5	
<i>Rhizopogon</i>	<i>occidentalis</i>		ID	Boundary	3	
<i>Rhizopogon</i>	<i>occidentalis</i>		ID	Kootenai	4	
<i>Rhizopogon</i>	<i>occidentalis</i>		ID	Pend Oreille	1	
<i>Rhizopogon</i>	<i>occidentalis</i>		ID	Valley	1	
<i>Rhizopogon</i>	<i>occidentalis</i>		OR	Wasco	2	
<i>Rhizopogon</i>	<i>occidentalis</i>		WA	Klickitat	4	
<i>Rhizopogon</i>	<i>occidentalis</i>		WA	Pend Oreille	19	
<i>Rhizopogon</i>	<i>ochraceorubens</i>		ID	Adams	5	
<i>Rhizopogon</i>	<i>ochraceorubens</i>		ID	Bonner	3	
<i>Rhizopogon</i>	<i>ochraceorubens</i>		ID	Custer	6	
<i>Rhizopogon</i>	<i>ochraceorubens</i>		ID	Idaho	17	
<i>Rhizopogon</i>	<i>ochraceorubens</i>		ID	Kootenai	1	

**Appendix 4. Common Columbia Basin Fungi in the University of Michigan Herbarium
(MICH)**

Mycorrhizal Fungi

False Truffles

Rhizopogon	ochraceorubens		ID	Valley	62	
Rhizopogon	ochraceorubens		ID-W		4	
Rhizopogon	ochraceorubens		OR	Deschutes	1	
Rhizopogon	ochraceorubens		OR	Hood River	1	
Rhizopogon	ochraceorubens		WA	Pend Oreille	4	
Rhizopogon	ochroleucoides		ID	Bonner	10	
Rhizopogon	ochroleucoides		ID	Idaho	5	
Rhizopogon	ochroleucoides		ID	Valley	3	
Rhizopogon	olivaceofuscus		ID	Bonner	22	
Rhizopogon	olivaceofuscus		ID	Idaho	6	
Rhizopogon	olivaceofuscus		ID	Valley	1	
Rhizopogon	olivaceofuscus		WA	Pend Oreille	10	
Rhizopogon	rubescens		ID	Bonner	2	
Rhizopogon	rubescens		ID	Custer	1	
Rhizopogon	rubescens		ID	Valley	2	
Rhizopogon	rubescens		WA	Pend Oreille	6	
Rhizopogon	rubescens	var.	ochraceous	ID	Adams	2
Rhizopogon	rubescens	var.	ochraceous	ID	Idaho	28
Rhizopogon	rubescens	var.	ochraceous	ID	Valley	33
Rhizopogon	rubescens	var.	rileyi	ID	Adams	1
Rhizopogon	rubescens	var.	rileyi	ID	Bonner	5
Rhizopogon	rubescens	var.	rileyi	ID	Custer	5
Rhizopogon	rubescens	var.	rileyi	ID	Idaho	9
Rhizopogon	rubescens	var.	rileyi	ID	Valley	19
Rhizopogon	rubescens	var.	rileyi	WA	Pend Oreille	7
Rhizopogon	rubescens	var.	rubescens	ID	Adams	1
Rhizopogon	rubescens	var.	rubescens	ID	Bonner	2
Rhizopogon	rubescens	var.	rubescens	ID	Custer	4
Rhizopogon	rubescens	var.	rubescens	ID	Elmore	1
Rhizopogon	rubescens	var.	rubescens	ID	Idaho	26
Rhizopogon	rubescens	var.	rubescens	ID	Valley	80
Rhizopogon	rubescens	var.	rubescens	WA	Pend Oreille	10
Rhizopogon	subcaerulescens	var.	subcaerulescens	ID	Custer	2
Rhizopogon	subcaerulescens	var.	subcaerulescens	ID	Idaho	27
Rhizopogon	subcaerulescens	var.	subcaerulescens	ID	Valley	22
Rhizopogon	subcaerulescens	var.	subcaerulescens	OR	Klamath	1
Rhizopogon	subcaerulescens	var.	subcaerulescens	WA	Pend Oreille	1
Rhizopogon	subcaerulescens	var.	subpannosus	ID	Adams	2
Rhizopogon	subcaerulescens	var.	subpannosus	ID	Bonner	34
Rhizopogon	subcaerulescens	var.	subpannosus	ID	Idaho	36
Rhizopogon	subcaerulescens	var.	subpannosus	ID	Valley	8
Rhizopogon	subcaerulescens	var.	subpannosus	OR	Union	1
Rhizopogon	subcaerulescens	var.	subpannosus	OR	Wheeler	1
Rhizopogon	subcaerulescens	var.	subpannosus	WA	Pend Oreille	8
Rhizopogon	subcitrinus			ID	Adams	4
Rhizopogon	subcitrinus			ID	Elmore	1
Rhizopogon	subcitrinus			ID	Valley	8
Rhizopogon	subsalmonius			ID	Adams	2
Rhizopogon	subsalmonius			ID	Custer	1
Rhizopogon	subsalmonius			ID	Idaho	14
Rhizopogon	subsalmonius			ID	Valley	30
Rhizopogon	subsalmonius			OR	Jefferson	1
Rhizopogon	subsalmonius			OR	Klamath	1

Appendix 4. Common Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Mycorrhizal Fungi

False Truffles

<i>Rhizopogon</i>	<i>subsalmonius</i>	var.	<i>persicinus</i>	ID	Idaho	8
<i>Rhizopogon</i>	<i>subsalmonius</i>	var.	<i>persicinus</i>	ID	Valley	16
<i>Rhizopogon</i>	<i>subsalmonius</i>	var.	<i>subsalmonius</i>	ID	Adams	1
<i>Rhizopogon</i>	<i>subsalmonius</i>	var.	<i>subsalmonius</i>	ID	Bonner	1
<i>Rhizopogon</i>	<i>subsalmonius</i>	var.	<i>subsalmonius</i>	ID	Bonner	15
<i>Rhizopogon</i>	<i>subsalmonius</i>	var.	<i>subsalmonius</i>	ID	Idaho	17
<i>Rhizopogon</i>	<i>subsalmonius</i>	var.	<i>subsalmonius</i>	ID	Valley	58
<i>Rhizopogon</i>	<i>vilosulus</i>			ID	Adams	2
<i>Rhizopogon</i>	<i>vilosulus</i>			ID	Bonner	10
<i>Rhizopogon</i>	<i>vilosulus</i>			OR	Crook	1
<i>Rhizopogon</i>	<i>vilosulus</i>			OR	Hood River	1
<i>Rhizopogon</i>	<i>vilosulus</i>			OR	Wasco	1
<i>Rhizopogon</i>	<i>vilosulus</i>			WA	Pend Oreille	6
<i>Rhizopogon</i>	<i>vinicolor</i>			ID	Adams	1
<i>Rhizopogon</i>	<i>vinicolor</i>			ID	Boise	1
<i>Rhizopogon</i>	<i>vinicolor</i>			ID	Bonner	17
<i>Rhizopogon</i>	<i>vinicolor</i>			ID	Idaho	3
<i>Rhizopogon</i>	<i>vinicolor</i>			ID	Valley	4
<i>Rhizopogon</i>	<i>vinicolor</i>			OR	Wallowa	1
<i>Rhizopogon</i>	<i>vinicolor</i>			WA	Pend Oreille	7
<i>Thaxterogaster</i>	<i>pingue</i>			ID	Adams	2
<i>Thaxterogaster</i>	<i>pingue</i>			ID	Bonner	1
<i>Thaxterogaster</i>	<i>pingue</i>			ID	Idaho	49
<i>Thaxterogaster</i>	<i>pingue</i>			ID	Valley	33
<i>Thaxterogaster</i>	<i>pingue</i>			OR	Deschutes	1
<i>Thaxterogaster</i>	<i>pingue</i>			OR	Hood River	2
<i>Thaxterogaster</i>	<i>pingue</i>			OR	Jackson	1
<i>Thaxterogaster</i>	<i>pingue</i>			OR	Jefferson	2
<i>Thaxterogaster</i>	<i>pingue</i>			OR	Klamath	1
<i>Thaxterogaster</i>	<i>pingue</i>			WA	Lewis	1
<i>Thaxterogaster</i>	<i>pingue</i>			WA	Pend Oreille	1
<i>Truncocolumella</i>	<i>citrina</i>			ID	Adams	1
<i>Truncocolumella</i>	<i>citrina</i>			ID	Bonner	9
<i>Truncocolumella</i>	<i>citrina</i>			ID	Custer	5
<i>Truncocolumella</i>	<i>citrina</i>			ID	Idaho	2
<i>Truncocolumella</i>	<i>citrina</i>			ID	Owyhee	4
<i>Truncocolumella</i>	<i>citrina</i>			ID	Valley	9
<i>Truncocolumella</i>	<i>citrina</i>			OR	Jackson	1
<i>Truncocolumella</i>	<i>citrina</i>			OR	Wasco	1
<i>Truncocolumella</i>	<i>citrina</i>			WA	Lewis	6
<i>Truncocolumella</i>	<i>citrina</i>			WA	Pend Oreille	1
<i>Truncocolumella</i>	<i>citrina</i>	var.	<i>citrina</i>	OR	Wasco	1
<i>Truncocolumella</i>	<i>citrina</i>	var.	<i>citrina</i>	WA	Lewis	1

Gilled Mushrooms

Genus	Species	Infraspecies	State	County	Occurrences
<i>Brauniellula</i>	<i>albipes</i>		ID	Custer	6
<i>Brauniellula</i>	<i>albipes</i>		ID	Idaho	10
<i>Brauniellula</i>	<i>albipes</i>		ID	Valley	12
<i>Brauniellula</i>	<i>albipes</i>		OR	Wasco	1
<i>Hygrophorus</i>	<i>avellaneifolius</i>		ID	Custer	1

Appendix 4. Common Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Mycorrhizal Fungi

Gilled Mushrooms

Hygrophorus	avellaneifolius			ID	Idaho	7
Hygrophorus	avellaneifolius			ID	Valley	2
Lactarius	deliciosus	var.	areolatus	ID	Boundary	2
Lactarius	deliciosus	var.	areolatus	ID	Custer	3
Lactarius	deliciosus	var.	areolatus	ID	Valley	9
Lactarius	uvidus	var.	montanus	ID	Bonner	1
Lactarius	uvidus	var.	montanus	ID	Boundary	1
Lactarius	uvidus	var.	montanus	ID	Custer	2
Lactarius	uvidus	var.	montanus	ID	Elmore	2
Lactarius	uvidus	var.	montanus	ID	Idaho	2
Lactarius	uvidus	var.	montanus	ID	Valley	2
Macowanites	americanus			ID	Idaho	13
Macowanites	americanus			ID	Valley	1341

Truffles

Genus	Species	Infraspecies	State	County	Occurrences
Barssia	oregonensis		ID	Cassia	2
Barssia	oregonensis		ID	Custer	1
Barssia	oregonensis		ID	Idaho	1
Barssia	oregonensis		ID	Owyhee	1
Barssia	oregonensis		ID	Valley	3
Elaphomyces	granulatus		ID	Bonner	6
Elaphomyces	granulatus		ID	Custer	1
Elaphomyces	granulatus		ID	Valley	17
Elaphomyces	granulatus		OR	Hood River	1
Elaphomyces	granulatus		WA	Pend Oreille	1
Elaphomyces	granulatus		WA	Skamania	2
Geopora	cooperi	f.	ID	Bonner	5
Geopora	cooperi	f.	ID	Idaho	2
Geopora	cooperi	f.	ID	Owyhee	1
Geopora	cooperi	f.	ID	Pend Oreille	1
Geopora	cooperi	f.	ID	Valley	14
Geopora	cooperi	f.	NV	Elko	2
Geopora	cooperi	f.	OR	Wasco	1
Geopora	cooperi	f.	UT	Box Elder	2
Geopora	cooperi	f.	WA	Chelan	1
Geopora	cooperi	f.	WA	Pend Oreille	1
Geopora	cooperi	f.	WA	Yakima	1
Geopora	cooperi	f.	ID	Cassia	3
Geopora	cooperi	f.	NV	Elko	2
Geopora	cooperi	f.	UT	Box Elder	2
Hydnotrya	cerebriformis		ID	Adams	5
Hydnotrya	cerebriformis		ID	Idaho	1
Hydnotrya	cerebriformis		ID	Valley	23
Hydnotrya	variiformis		ID	Bonner	9
Hydnotrya	variiformis		ID	Idaho	7
Hydnotrya	variiformis		ID	Valley	6
Hydnotrya	variiformis		OR	Deschutes	1
Hydnotrya	variiformis		OR	Klamath	2

Appendix 4. Common Columbia Basin Fungi in the University of Michigan Herbarium (MICH)

Saprobic (?) Fungi

Gilled Mushrooms

Genus	Species	Infraspecies	State	County	Occurrences
<i>Hygrophorus</i>	<i>inocv biformis</i>		ID	Bonner	1
<i>Hygrophorus</i>	<i>inocv biformis</i>		ID	Custer	4
<i>Hygrophorus</i>	<i>inocv biformis</i>		ID	Idaho	1
<i>Hygrophorus</i>	<i>inocv biformis</i>		ID	Valley	23
<i>Hygrophorus</i>	<i>monitcola</i>		ID	Adams	1
<i>Hygrophorus</i>	<i>monitcola</i>		ID	Bonner	1
<i>Hygrophorus</i>	<i>monitcola</i>		ID	Idaho	2
<i>Hygrophorus</i>	<i>monitcola</i>		ID	Valley	9

Saprobic Fungi

False Truffles

Genus	Species	Infraspecies	State	County	Occurrences
<i>Trappea</i>	<i>darkeri</i>		ID	Adams	1
<i>Trappea</i>	<i>darkeri</i>		ID	Bonner	3
<i>Trappea</i>	<i>darkeri</i>		ID	Valley	2
<i>Trappea</i>	<i>darkeri</i>		UT	Box Elder	1
<i>Trappea</i>	<i>darkeri</i>		WA	Pend Oreille	3

Gilled Mushrooms

Genus	Species	Infraspecies	State	County	Occurrences
<i>Clitocybe</i>	<i>idahoensis</i>		ID	Custer	2
<i>Clitocybe</i>	<i>idahoensis</i>		ID	Valley	11
<i>Clitocybe</i>	<i>madefacta</i>		ID	Bonner	2
<i>Clitocybe</i>	<i>mutabilis</i>		ID	Bonner	3
<i>Clitocybe</i>	<i>mutabilis</i>		ID	Idaho	4
<i>Clitocybe</i>	<i>mutabilis</i>		ID	Valley	5
<i>Clitocybe</i>	<i>mutabilis</i>		OR	Deschutes	1
<i>Clitocybe</i>	<i>mutabilis</i>		OR	Hood River	1
<i>Clitocybe</i>	<i>squamulosa</i>	var. <i>montana</i>	ID	Bonner	1
<i>Clitocybe</i>	<i>squamulosa</i>	var. <i>montana</i>	ID	Idaho	2
<i>Clitocybe</i>	<i>squamulosa</i>	var. <i>montana</i>	ID	Valley	23
<i>Lentinellus</i>	<i>montanus</i>		ID	Bonner	1
<i>Lentinellus</i>	<i>montanus</i>		ID	Valley	11
<i>Lentinus</i>	<i>ponderosus</i>		ID	Bonner	1
<i>Lentinus</i>	<i>ponderosus</i>		ID	Valley	7
<i>Lentinus</i>	<i>ponderosus</i>		OR	Klamath	2

Puffballs

Genus	Species	Infraspecies	State	County	Occurrences
<i>Abstoma</i>	<i>townei</i>		ID	Adams-Washington	1
<i>Abstoma</i>	<i>townei</i>		ID	Owyhee	12
<i>Bovista</i>	<i>pila</i>		ID	Elmore	3

**Appendix 4. Common Columbia Basin Fungi in the University of Michigan Herbarium
(MICH)**

Saprobic Fungi

Puffballs

Bovista	pila		ID	Idaho	5
Bovista	pila		ID	Owyhee	3
Bovista	pila		ID	Valley	6
Bovista	pila		OR	Wasco	1
Bovista	plumbea		ID	Ada	1
Bovista	plumbea		ID	Bonner	1
Bovista	plumbea		ID	Canyon	3
Bovista	plumbea		ID	Elmore	10
Bovista	plumbea		ID	Latah	1
Bovista	plumbea		ID	Owyhee	64
Bovista	plumbea		NV	Elko	2
Bovista	plumbea		OR	Baker	3
Bovista	plumbea		OR	Jackson	1
Bovista	plumbea		OR	Malheur	14
Bovista	plumbea		WA	Chelan	1
Bovista	plumbea		WA	Lewis	1
Bovistella	echinella		ID	Custer	2
Bovistella	echinella		ID	Valley	10
Calbovista	subsculpta		ID	Boise	2
Calbovista	subsculpta		ID	Bonner	1
Calbovista	subsculpta		ID	Custer	1
Calbovista	subsculpta		ID	Elmore	3
Calbovista	subsculpta		ID	Idaho	1
Calbovista	subsculpta		ID	Owyhee	12
Calbovista	subsculpta		ID	Shoshone (?)	1
Calbovista	subsculpta		ID	Valley	14
Calvatia	booniana		ID	Custer	1
Calvatia	booniana		ID	Madison	2
Calvatia	booniana		ID	Owyhee	20
Calvatia	cyathiformis		ID	Boise	2
Calvatia	cyathiformis		ID	Elmore	3
Calvatia	cyathiformis		ID	Owyhee	10
Calvatia	cyathiformis		OR	Malheur	4
Calvatia	cyathiformis	cyathiformis	ID	Owyhee	3
Calvatia	cyathiformis	f.	ID	Custer	1
Calvatia	cyathiformis	f.	ID	Elmore	4
Calvatia	cyathiformis	f.	ID	Owyhee	23
Calvatia	cyathiformis	f.	ID	Valley	1
Calvatia	cyathiformis	f.	OR	Malheur	4
Calvatia	fumosa		ID	Adams	1
Calvatia	fumosa		ID	Elmore	1
Calvatia	fumosa		ID	Idaho	6
Calvatia	fumosa		ID	Owyhee	2
Calvatia	fumosa		ID	Valley	69
Calvatia	fumosa		OR	Klamath	3
Calvatia	fumosa	var.	ID	Adams	2
Calvatia	fumosa	var.	ID	Idaho	11
Calvatia	fumosa	var.	ID	Valley	16
Calvatia	fumosa	var.	OR	Klamath	1
Calvatia	subcretacea		ID	Adams	6
Calvatia	subcretacea		ID	Boise	2
Calvatia	subcretacea		ID	Idaho	7
Calvatia	subcretacea		ID	Owyhee	2

**Appendix 4. Common Columbia Basin Fungi in the University of Michigan Herbarium
(MICH)**

Saprobic Fungi

Puffballs

Calvatia	subcretacea		ID	I Valley	65
Calvatia	subcretacea		OR	Hood River	1
Endoptychum	agaricoides		ID	?	13
Endoptychum	agaricoides		ID	Ada	1
Endoptychum	agaricoides		ID	Canyon	2
Endoptychum	agaricoides		ID	Elmore	6
Endoptychum	agaricoides		ID	Kootenai	3
Endoptychum	agaricoides		ID	Owyhee	38
Endoptychum	agaricoides		ID	Valley	1
Endoptychum	agaricoides		OR	Baker	1
Endoptychum	agaricoides		OR	Malheur	16
Endoptychum	agaricoides		OR	Wasco	1
Montagnea	arenaria		ID	Owyhee	10
Montagnea	arenaria		OR	Malheur	2
Montagnea	arenaria		WA	Benton	1
Nivatogastrium	nubigenum		ID	Boise	1
Nivatogastrium	nubigenum		ID	Valley	7
Nivatogastrium	nubigenum		OR	Deschutes	1
Nivatogastrium	nubigenum		OR	Klamath	1
Vascellum	lloydianum		OR	Jackson	1
Vascellum	lloydianum		OR	Wasco	1
Vascellum	lloydianum		WA	Lewis	11

Appendix 5. Columbia Basin Fungi of Special Concern in the University of Michigan Herbarium (MICH)

Mycorrhizal Fungi

Boletes

Genus	Species		Infraspecies	State	County	Occurrences
Gastroboletus	subalpinus			OR	Hood River	1
Gastroboletus	turbinatus	var.	flammeus	ID	Valley	1
Leccinum	clavatum			ID	Valley	2
Leccinum	discolor			ID	Bonner	1
Leccinum	fallax			ID	Valley	3
Leccinum	fibrillosum			ID	Bonner	2
Leccinum	fibrillosum			ID	Idaho	1
Leccinum	fibrillosum			ID	Valley	2
Leccinum	idahoense			ID	Boundary	1
Leccinum	incarnatum			ID	Bonner	2
Leccinum	incarnatum			ID	Custer	1
Leccinum	incarnatum			ID	Valley	2
Leccinum	subfulvum			WA	Pierce-Lewis	1
Porphyrellus	amylosporus			ID	Bonner	1
Suillus	borealis			ID	Shoshone	1
Suillus	borealis			WA	Pend Oreille	1
Suillus	flavo-granulatus			ID	Bonner	3
Suillus	pallidiceps			ID	Bonner	1
Suillus	pallidiceps			ID	Custer	1
Suillus	pallidiceps			ID	Valley	2
Suillus	pseudobrevipes			ID	Custer	1
Suillus	pseudobrevipes			ID	Valley	1
Suillus	pseudobrevipes			ID	Washington	1
Suillus	tomentosus	var.	discolor	ID	Bonner	12
Suillus	tomentosus	var.	discolor	ID	Boundary	1

Chanterelles

Genus	Species		Infraspecies	State	County	Occurrences
Cantharellus	floccosus	f.	rainieriensis	ID	Bonner	2
Cantharellus	tioccosus	f.	rainieriensis	OR	Wasco	2
Cantharellus	fumosa			ID	Idaho	1
Cantharellus	subcretacea			ID	Valley	2

False Truffles

Genus	Species		Infraspecies	State	County	Occurrences
Alpova	diplophloeus	f.	diplophloeus	WA	Skamania	1
Alpova	mollis			WA	Pend Oreille	1
Arcangeliella	tenax			OR	Hood River	1
Chamonixia	brevicolumna			ID	Idaho	2
Chamonixia	brevicolumna			ID	Valley	4
Destuntzia	suborealis			ID	Bonner	1
Gautieria	monticola			OR	Jefferson	1
Gautieria	monticola			OR	Klamath	1
Gomphogaster	leucosarx			ID	Valley	1
Gymnomyces	ferruginascens			ID	Valley	9
Hysterangium	crassirhachis			OR	Jackson	1
Hysterangium	separabile			OR	Jackson	1
Leucophleps	magnata			ID	Valley	7

Appendix 5. Columbia Basin Fungi of Special Concern in the University of Michigan Herbarium (MICH)

Mycorrhizal Fungi

False Truffles

Genus	Species	Infraspecies	State	County	Occurrences
Leucophleps	magnata		OR	Deschutes	1
Martellia	brunnescens		ID	Valley	1
Martellia	ellipsospora		ID	Idaho	1
Martellia	foetens		ID	Idaho	1
Martellia	fragrans		ID	Valley	1
Martellia	fulvispora		ID	Valley	2
Martellia	monitcola		ID	Adams	2
Martellia	subalpina		ID	Valley	1
Martellia	subochracea		ID	Valley	1
Melanogaster	ambiguus		ID	Boise	1
Melanogaster	tuberiformis		ID	Bonner	1
Melanogaster	tuberiformis		ID	Elmore	1
Melanogaster	tuberiformis		ID	Idaho	1
Melanogaster	tuberiformis		ID	Valley	2
Melanogaster	tuberiformis		OR	Wasco	1
Protogautieria	lutea		WA	Pend Oreille	1
Rhizopogon	abietis		ID	Custer	1
Rhizopogon	abietis		ID	Idaho	1
Rhizopogon	abietis		ID	Valley	6
Rhizopogon	albidus		ID	Idaho	1
Rhizopogon	albidus		ID	Valley	6
Rhizopogon	albiroseus		ID	Bonner	2
Rhizopogon	alkalivirens		ID	Adams	1
Rhizopogon	alkalivirens		WA	Pend Oreille	1
Rhizopogon	alpestris		ID	Valley	1
Rhizopogon	anomalus		ID	Boundary	1
Rhizopogon	arenicola		ID	Bonner	1
Rhizopogon	argillaceus		ID	Valley	1
Rhizopogon	argillascens		ID	Bonner	2
Rhizopogon	aurantiacus		ID	Valley	1
Rhizopogon	avellaneitectus		ID	Bonner	1
Rhizopogon	avellaneitectus		WA	Pend Oreille	1
Rhizopogon	bacillisporus		WA	Klickitat	1
Rhizopogon	brunneicolor		ID	Bonner	3
Rhizopogon	brunneicolor		ID	Idaho	3
Rhizopogon	brunneicolor		ID	Valley	3
Rhizopogon	brunneifibrillosus		ID	Bonner	1
Rhizopogon	brunneifibrillosus		OR	Wasco	1
Rhizopogon	butyraceus		ID	Idaho	1
Rhizopogon	butyraceus		ID	Valley	1
Rhizopogon	chamaleontinus		ID	Bonner	1
Rhizopogon	inerascens		ID	Bonner	3
Rhizopogon	clavitisporus		ID	Valley	1
Rhizopogon	cokeri		ID	Bonner	4
Rhizopogon	colossus	var.	ID	Valley	1
Rhizopogon	colossus	var.	OR	Wasco	1
Rhizopogon	colossus	var.	WA	Skamania	1
Rhizopogon	colossus	var.	OR	Wasco	3
Rhizopogon	colossus	var.	WA	Klickitat	1
Rhizopogon	colossus	var.	WA	Yakima	1
Rhizopogon	cusickiensis		WA	Pend O'reille	
Rhizopogon	cylindrisporus		ID	Shoshone	

Appendix 5. Columbia Basin Fungi of Special Concern in the University of Michigan Herbarium (MICH)

Mycorrhizal Fungi

False Truffles

Genus	Species	Infraspecies	State	County	Occurrences
Rhizopogon	deceptivus		ID	Adams	1
Rhizopogon	deceptivus		ID	Bonner	1
Rhizopogon	deceptivus		ID	Idaho	3
Rhizopogon	defectus		ID	Bonner	2
Rhizopogon	evadens	var. subalpinus	ID	Idaho	1
Rhizopogon	evadens	var. subalpinus	OR	Hood River	1
Rhizopogon	fallax		ID	Adams	1
Rhizopogon	fallax		ID	Custer	1
Rhizopogon	fallax		ID	Idaho	1
Rhizopogon	flavofibrillosus		ID	Valley	2
Rhizopogon	florencianus		ID	Idaho	1
Rhizopogon	fragmentatus		WA	Klickitat	2
Rhizopogon	fragrans		ID	Idaho	1
Rhizopogon	fragrans		ID	Valley	1
Rhizopogon	griseogleba		ID	Valley	1
Rhizopogon	hysterangiodes		ID	Valley	2
Rhizopogon	inquinatus		ID	Bonner	1
Rhizopogon	kauffmanii		ID	Boundary	1
Rhizopogon	kauffmanii		ID	Idaho	1
Rhizopogon	laetiflavus		ID	Valley	4
Rhizopogon	leteorubescens		ID	Valley	1
Rhizopogon	lutealboides		ID	Idaho	2
Rhizopogon	luteoalbus		ID	Idaho	3
Rhizopogon	luteoalbus		ID	Valley	1
Rhizopogon	luteoloides		ID	Idaho	6
Rhizopogon	luteoloides		WA	Pend Oreille	1
Rhizopogon	luteorubescens		ID	Bonner	1
Rhizopogon	luteorubescens		ID	Idaho	1
Rhizopogon	luteorubescens		ID	Valley	4
Rhizopogon	lutescens		ID	Boise	1
Rhizopogon	lutescens		ID	Valley	1
Rhizopogon	masonae		OR	Wasco-Clack	1
Rhizopogon	milleri		ID	Bonner	1
Rhizopogon	molligleba		ID	Idaho	2
Rhizopogon	monticola		ID	Valley	1
Rhizopogon	mutabilis		ID	Idaho	3
Rhizopogon	obscurus		ID	Adams	1
Rhizopogon	obscurus		ID	Valley	2
Rhizopogon	ochraceisporus		ID	Boise	1
Rhizopogon	ochraceisporus		ID	Idaho	1
Rhizopogon	ochtaceisporus		ID	Valley	2
Rhizopogon	ochraceisporus		WA	Pend Oreille	2
Rhizopogon	ochraceobrunnescens		ID	Bonner	1
Rhizopogon	ochraceobrunnescens		ID	Idaho	1
Rhizopogon	ochroleucus		ID	Idaho	3
Rhizopogon	ochroleucus		ID	Valley	1
Rhizopogon	odoratus		WA	Ferry	1
Rhizopogon	olivaceoluteus		ID	Bonner	1
Rhizopogon	oswaldii		OR	Wasco	1
Rhizopogon	oswaldii		WA	Klickitat	1
Rhizopogon	parksii		OR	Wasco	2
Rhizopogon	parksii		WA	Skamania	1

**Appendix 5. Columbia Basin Fungi of Special Concern in the university of Michigan
Herbarium (MICH)**

Mycorrhizal Fungi

False Truffles

Genus	Species	Infraspecies	State	County	Occurrences
Rhizopogon	parksii		WA	Yakima	3
Rhizopogon	parvulus		ID	Bonner	2
Rhizopogon	panfulus		ID	Valley	1
Rhizopogon	pedicellus		ID	Valley	2
Rhizopogon	proximus		WA	Pend Oreille	1
Rhizopogon	pseudoaffinis		ID	Valley	6
Rhizopogon	pseudoalbus		ID	Valley	1
Rhizopogon	pseudovillosulus		ID	Valley	2
Rhizopogon	pseudovillosulus		WA	Pend Oreille	3
Rhizopogon	psuedoaffinis		ID	Valley.	1
Rhizopogon	quercicola		ID	Bonner	1
Rhizopogon	quercicola		OR	Wasco	1
Rhizopogon	quercicola		WA	Pend Oreille	1
Rhizopogon	rogersii		ID	Bonner	1
Rhizopogon	rogersii		OR	Wallowa	1
Rhizopogon	roseolus		ID	Custer	1
Rhizopogon	rubescens	<i>lallidimaculatus</i>	ID	Valley	2
Rhizopogon	rudus		ID	Bonner	1
Rhizopogon	salebrosus		ID	Idaho	3
Rhizopogon	semireticulatus		WA	Klickitat	1
Rhizopogon	semireticulatus		WA	Pend Oreille	7
Rhizopogon	semitectus		ID	B o n n e r	1
Rhizopogon	semitectus		ID	Boundary	1
Rhizopogon	sordidus		ID	Bonner	2
Rhizopogon	subareolatus		ID	Valley	3
Rhizopogon	subareolatus		WA	Skamania	6
Rhizopogon	subbadius	<i>iridescens</i>	ID	Bonner	1
Rhizopogon	subbadius		ID	Custer	1
Rhizopogon	subcaerulescens		ID	Valley	1
Rhizopogon	subcaerulescens		ID	Bonner	1
Rhizopogon	subcinnamomeus		ID	Bonner	2
Rhizopogon	subclavitisporus		ID	Bonner	1
Rhizopogon	subcroceus		ID	Adams	1
Rhizopogon	subcroceus		ID	Boise	1
Rhizopogon	subcroceus		ID	Custer	1
Rhizopogon	subcroceus		ID	Valley	4
Rhizopogon	subgelatinosus	<i>griseolilascens</i>	ID	Bonner	4
Rhizopogon	subgelatinosus		ID	Valley	1
Rhizopogon	sublateritius		ID	Bonner	2
Rhizopogon	sublateritius		WA	Pend Oreille	1
Rhizopogon	sublivascens		ID	Valley	1
Rhizopogon	subpurpurascens		ID	Custer	2
Rhizopogon	subpurpurascens		ID	Idaho	2
Rhizopogon	subpurpurascens		OR	Jefferson	1
Rhizopogon	subradicatus		WA	Ferry	2
Rhizopogon	subsalmonus		ID	Bonner	1
Rhizopogon	subsalmonus	<i>roseitinctus</i>	ID	Idaho	1
Rhizopogon	subsalmonus		ID	Bonner	2
Rhizopogon	subsalmonus .		ID	Valley	1
Rhizopogon	subsalmonus		ID	Bonner	1
Rhizopogon	udus	<i>similis</i>	ID	Idaho	1
Rhizopogon	udus		ID	Valley	1
Rhizopogon	udus		ID	Bonner	1
Rhizopogon	udus		ID	Idaho	1

Appendix 5. Columbia Basin Fungi of Special Concern in the University of Michigan Herbarium (MICH)

Mycorrhizal Fungi

False Truffles

Genus	Species	Infraspecies	State	County	Occurrences
Rhizopogon	umbrinoviolascens		ID	Idaho	1
Rhizopogon	umbrinoviolascens		WA	Pend Oreille	1
Rhizopogon	variabilisporus		ID	Valley	1
Rhizopogon	vesiculosus		ID	Bonner	3
Rhizopogon	vesiculosus		WA	Pend Oreille	1
Rhizopogon	villescens		ID	Bonner	3
Rhizopogon	villescens		WA	Pend Oreille	1
Rhizopogon	vulgaris		ID	Bonner	4
Rhizopogon	vulgaris		ID	Valley	3
Rhizopogon	vulgaris		OR	Deschutes	1
Rhizopogon	zelleri		ID	Adams	1
Rhizopogon	zelleri		ID	Valley	2
Sclerogaster	xerophila		UT	Box Elder	2
Truncocolumella	citrina	var. separabilis	ID	Valley	2

Gilled Mushrooms

Genus	Species	Infraspecies	State	County	Occurrences
Amanita	armillariformis		OR	Malheur	1
Amanita	malheurensis		ID	Owyhee	1
Amanita	malheurensis		OR	Malheur	3
Amanita	silvicola		OR	Wasco	3
Chroogomphus	pseudovinicolor		ID	Boise	1
Chroogomphus	pseudovinicolor		ID	Bonner	7
Crepidotus	lagenicystis		WA	Pierce-Lewis	1
Crepidotus	lanuginosus		ID	Valley	1
Crepidotus	montanensis		MT	Flathead	1
Crepidotus	payettensis		ID	Valley	1
Crepidotus	ponderosus		OR	Union	1
Crepidotus	stratosus		ID	Bonner	1
Crepidotus	sububer		ID	Bonner	1
Galera	martipes		OR	Hood River	1
Galerina	anelligera		ID	Valley	1
Galerina	borealis		ID	Bonner	1
Galerina	castanescens		ID	Bonner	1
Galerina	diabolissima		ID	Idaho	1
Galerina	fontinalis		ID	Valley	1
Galerina	fuscobrunnea		OR	Wasco	1
Galerina	mainsii		ID	Valley	2
Galerina	mainsii		MT	Flathead	1
Galerina	nigripes		OR	Jackson	1
Galerina	nordmaniana		ID	Bonner	1
Galerina	payettensis		ID	Valley	1
Galerina	pseudostylifera		ID	Idaho	1
Galerina	pubescentipes		ID	Idaho	1
Galerina	stylifera	var. badia	ID	Bonner	1
Galerina	stylifera	var. velosa	ID	Idaho	1
Galerina	triscopa	f. longocystis	ID	Payette	1
Gymnopilus	rufobrunneus		ID	Bonner	1
Hebeloma	alpinicola		ID	Idaho	1
Hebeloma	idahoense		ID	Valley	2

Appendix 5. Columbia Basin Fungi of Special Concern in the University of Michigan Herbarium (MICH)

Mycorrhizal Fungi

Gilled Mushrooms

Genus	Species		Infraspecies	State	County	Occurrences
Hebeloma	kelloggense			ID	Shoshone	1
Hebeloma	<i>latisporum</i>			ID	Bonner	1
Hebeloma	mesophaeum	var.	subobscurum	ID	Idaho	1
Hebeloma	occidentale			OR	Wasco-Clack	1
Hebeloma	<i>olympianum</i>			ID	Bonner	1
Hebeloma	oregonense			OR	Wasco	1
Hebeloma	parcivolum			OR	Wasco	1
Hebeloma	pseudofastibile	var.	distans	ID	Valley	1
Hebeloma	<i>pungens</i>			OR	Wasco	1
Hebeloma	salmonense			ID	Idaho	1
Hebeloma	stanleyense			ID	Custer	1
Hebeloma	strophosum	var.	occidentale	ID	Valley	1
Hebeloma	vtnaceogriseum			ID	Idaho	1
Lactarius	alnicola			ID	Valley	1
Lactarius	alpinus	var.	mitis	ID	Bonner	3
Lactarius	alpinus	var.	mitis	ID	Valley	2
Lactarius	alpinus	var.	mitts	OR	Wasco	1
Lactarius	cascadensis			ID	Bonner	1
Lactarius	cascadensis			OR	Wasco	1
Lactarius	circellatus	var.	borealis	ID	Bonner	6
Lactarius	circellatus	var.	borealis	ID	Kootenai	1
Lactarius	circellatus	var.	borealis	ID	Valley	1
Lactarius	gossypinus			WY	Teton	1
Lactarius	kauffmannii			ID	Bonner	1
Lactarius	kauffmannii			OR	Hood River	1
Lactarius	nordmanensis			ID	Bonner	1
Lactarius	pallescens			ID	Bonner	1
Lactarius	pallescens			ID	Boundary	1
Lactarius	payettensis			ID	Valley	1
Lactarius	payettensis	var.	payettensis	ID	Valley	1
Lactarius	resimus	var.	intermedius	ID	Custer	1
Lactarius	rufus	var.	parvus	ID	Bonner	1
Lactarius	rufus	var.	parvus	ID	Boundary	1
Lactarius	eucopaxillus	albissimus	var.	ID	Valley	1
Lactarius	eucopaxillus	amarus	f.	ID	Valley	1
Lactarius	eucopaxillus	amarus	s.f.	ID	Valley	1
Lactarius	eucopaxillus	septenbionalis		ID	Valley	1
Lactarius	eucopaxillus	septenbionalis		OR	Wasco	3
Macowanites	acris			ID	Custer	9
Macowanites	citrinus			ID	Custer	5
Macowanites	fulvescens			ID	Valley	3
Macowanites	fuscoviolaceus			ID	Valley	1
Macowanites	lacteus			ID	Valley	1
Macowanites	lilacinus			ID	Valley	1
Macowanites	nauseosus			ID	Valley	1
Macowanites	blacowanites			ID	Adams	1
Macowanites	olidus			ID	Valley	1
Macowanites	pinicola			ID	Valley	1
Macowanites	pseudometicus			ID	Valley	1
Macowanites	subolivaceous			ID	Custer	1
Macowanites	subrosaceus			ID	Valley	1
Macowanites	vinicolor			ID	Valley	1
?haeocollybia	deceptiva			ID	Bonner	1

Appendix 5. Columbia Basin Fungi of Special Concern in the University of Michigan Herbarium (MICH)

Mycorrhizal Fungi,

Gilled Mushrooms

Genus	Species	Infraspecies	State	County	Occurrences
Pholiota	agglutinata		ID	Valley	3
Pholiota	atipes		ID	Bonner	3
Pholiota	atipes		ID	Boundary	1
Pholiota	atipes		WY	Teton	1
Pholiota	aurantioflava		ID	Bonner	1
Pholiota	avellaneifolia		ID	Custer	1
Pholiota	avellaneifolia		ID	Valley	1
Pholiota	baptistii		ID	Adams	1
Pholiota	baptistii		ID	Boise	4
Pholiota	baptistii		ID	Elmore	1
Pholiota	brunnea		ID	Valley	1
Pholiota	conica		ID	Bonner	2
Pholiota	flavida	var. graveolens	ID	Bonner	2
Pholiota	flavopallida		ID	Bonner	4
Pholiota	fulvodisca		ID	Bonner	1
Pholiota	fulvodisca		ID	Boundary	1
Pholiota	fulvodisca		ID	Valley	1
Pholiota	fulvozonata		ID	Bonner	2
Pholiota	gruberi		ID	Nez Perce	1
Pholiota	hiemalis		ID	Boundary	1
Pholiota	humii		ID	Bonner	2
Pholiota	humii		ID	Idaho	2
Pholiota	humii		ID	Valley	2
Pholiota	I u b r i c a	var. luteifolia	ID	Adams	1
Pholiota	luteola		ID	Valley	1
Pholiota	macrocystis		ID	Valley	1
Pholiota	malicola	var. macropoda	I	Valley	1
Pholiota	milleri		ID	Bonner	1
Pholiota	molesta		ID	Idaho	1
Pholiota	molesta		ID	Valley	1
Pholiota	nigripes		ID	Idaho	2
Pholiota	nigripes		ID	Valley	1
Pholiota	obscura		ID	Adams	2
Pholiota	obscura		ID	Idaho	1
Pholiota	obscura		ID	Valley	2
Pholiota	occidentalis	var. luteifolia	ID	Boundary	1
Pholiota	pallida		ID	Valley	1
Pholiota	pulchella	var. brevipes	ID	Bonner	1
Pholiota	rivulosa		ID	Valley	1
Pholiota	rufodisca		ID	Valley	1
Pholiota	scamboides		ID	Bonner	1
Pholiota	stratosus		ID	Bonner	5
Pholiota	subechinata		ID	Bonner	2
Pholiota	subechinata		WA	Lewis	1
Pholiota	sublubrica		ID	Boise	1
Pholiota	sublubrica		ID	Custer	1
Pholiota	sublubrica		ID	Idaho	2
Pholiota	sublubrica		ID	Valley	2
Pholiota	sublubrica		WA	Lewis	1
Pholiota	subsaponacea		ID	Boundary	1
Pholiota	tetonensis		WY	Teton	1
Pholiota	umbilicata		ID	Boundary	1

Appendix 5. Columbia Basin Fungi of Special Concern in the University of Michigan Herbarium (MICH)

Mycorrhizal Fungi

Gilled Mushrooms

Genus	Species	Infraspecies	State	County	Occurrences
Pholiota	vinaceobrunnea		ID	Bonner	4
Pholiota	vinaceobrunnea		ID	Valley	1
Russula	brevipes	var. acrior	ID	Idaho	1
Russula	brevipes	var. acrior	ID	Valley	3
Russula	densifolia	f. cremeispora	ID	Valley	2
Russula	idahoensis		ID	Valley	1
Russula	vinosa	ssp. occidentalis	ID	Boundary	1

Truffles

Genus	Species	Infraspecies	State	County	Occurrences
Balsamia	platyspora		NV	Elko	
Balsamia	platyspora		NV	Elko	2
Balsamia	platyspora		UT	Box Elder	2
Balsamia	vulgaris		ID	Idaho	1
Choiromyces	alveolatus		ID	Valley	1
Genabea	cerebriformis		ID	Owyhee	1
Genabea	cerebriformis		UT	Box Elder	1
Geopora	clausa		NV	Elko	2
Hydnotrya	michaelis		ID	Valley	1
Hydnotrya	michaelis		NV	Elko	1
Hydnotrya	michaelis		NV	Elko	5
Picoa	aff. carthusiana		ID	Valley	1
Picoa	aff. caethusiana		OR	Wasco	1
Tuber	irradians		ID	Adams	1
Tuber	rufum	var. nitidum	ID	Idaho	1

Parasitic Fungi

Ascostromatic

Genus	Species	Infraspecies	State	County	Occurrences
Leptosphaeria	hysterioides		ID	Idaho	1
Leptosphaeria	hysterioides		WA	Yakima	1
Ophiobolus	prunellae		WA	Klickitat	1

Coral Fungi

Genus	Species	Infraspecies	State	County	Occurrences
Typhula	idahoensis		ID	Camas	1
Typhula	idahoensis		WA	Douglas	1

Cup Fungi

Genus	Species	Infraspecies	State	County	Occurrences
Cenangium	piniphilum		ID	Bonner	1
Ciboria	alni		OR	Hood River	1

Appendix 5. Columbia Basin Fungi of Special Concern in the University of Michigan Herbarium (MICH)

Parasitic Fungi

Cup Fungi

Genus	Species		Infraspecies	State	County	Occurrences
Hypoxylon	serpens	var.	macrospora	ID	Boundary	1

Imperfect Fungi

Genus	Species		Infraspecies	State	County	Occurrences
Cercosporaella	aceris			WA	?	1
Cercosporaella	streptopi			WA	?	1
Marssonia	rhamni			WA	Benton	1
Phleospora	megarrhizae			WA	Benton	1
Phoma	lunulatospora			WA	Lewis	1
Phoma	lupini			WA	Klickitat	1
Phoma	pedicularis	var.	minor	WA	?	1
Phyllosticta	erigonii			WA	Klickitat	1
Phyllosticta	hosackiae			WA	Klickitat	1
Placosphaetia	shastensis			OR		1
Septogloewum	salicis-fendlerianae			ID	Canyon	1
Stigmopeltis	araminicola			WA	?	1

Polypores

Genus	Species		Infraspecies	State	County	Occurrences
Anomoporia	bombycinia			ID	Bonner	4
Postia	placenta			ID	Bonner	7
Postia	placenta			ID	Shoshone	1

Rust Fungi

Genus	Species		Infraspecies	State	County	Occurrences
Aecidium	phlogis			ID	Nez Perce	1
Puccinia	angelicae			WA	Klickitat	1
Puccinia	chelonis			WA	?	1
Puccinia	dichelostemmae			WA	Whitman	1
Puccinia	gemella			WA	?	1
Puccinia	phaceliae			WA	?	1
Puccinia	sejuncta			WA	Klickitat	1

Smut Fungi

Genus	Species		Infraspecies	State	County	Occurrences
Tilletia	brevifaciens			ID	Lewis	1
Tilletia	fusca			ID	Boise	1
Tilletia	fusca			WA	Adams	2
Tilletia	scrobiculata			ID	Latah	1
Tilletia	scrobiculata			ID	Valley	1

Appendix 5. Columbia Basin Fungi of Special Concern in the University of Michigan Herbarium (MICH)

Saprobic (?) Fungi

Gilled Mushrooms

Genus	Species	Infraspecies	State	County	Occurrences
Hygrophorus	burgdorffensis		ID	Idaho	1
Hygrophorus	ellenae		ID	Boise	5
Hygrophorus	fuscoalboides		ID	Custer	1
Hygrophorus	fuscoalboides		ID	Valley	1
Hygrophorus	nordmanensis		ID	Bonner	7
Hygrophorus	nordmanensis		ID	Boundary	2
Hygrophorus	pusillus		ID	Bonner	3
Hygrophorus	pusillus		ID	Latah	1
Hygrophorus	velatus		ID	Idaho	1
Hygrophorus	vinicolor		ID	Custer	1
Hygrophorus	vinicolor		ID	Valley	1
Kuehneromyces	carbonicola		ID	Valley	1

Tooth Fungi

Genus	Species	Infraspecies	State	County	Occurrences
Hydnellum	regium		ID	Valley	2
Hydnellum	regium		OR	Wasco	4

Saprobic Fungi

Birds Nest

Genus	Species	Infraspecies	State	County	Occurrences
Cyathus	fimbriatus		ID	Valley	1
Cyathus	olla	f.	ID	Owyhee	2

Coral Fungi

Genus	Species	Infraspecies	State	County	Occurrences
Clavicorona	avellanea		ID	Bonner	3
Clavicorona	avellanea		ID	Boundary	2
Clavicorona	divaricata		ID	Bonner	3

Cup Fungi

Genus	Species	Infraspecies	State	County	Occurrences
Geopyxis	carbonaria		ID	Bonner	1
Geopyxis	cupularis		MT	Flathead	5
Geopyxis	cupularis		MT	Missoula	1
Geopyxis	vulcanalis		ID	Adams	1
Geopyxis	vulcanalis		ID	Idaho	1
Geopyxis	vulcanalis		ID	Valley	4
Helvella	maculata		ID	Bonner	1
Neournula	nordmanensis		ID	Bonner	1
Spathularia	flavida	var.	ID	Idaho	2
Spathularia	flavida	var.	ID	Valley	2

Appendix 5. Columbia Basin Fungi of Special Concern in the University of Michigan Herbarium (MICH)

Saprobic Fungi

Cup Fungi

False Truffles

Genus	Species	Infraspecies	State	County	Occurrences
Trappea	phillipsii		OR	Jackson	2

Gilled Mushrooms

Genus	Species	Infraspecies	State	County	Occurrences
Armillaria	caligata	<i>far.</i> occidentalis	ID	Bonner	1
Armillaria	caligata	<i>far.</i> occidentalis	ID	Valley	2
Clitocybe	albirhiza		ID	Owyhee	1
Clitocybe	albirhiza		ID	Valley	5
Clitocybe	caperata		ID	Valley	1
Clitocybe	crassa		ID	Valley	5
Clitocybe	deceptiva		ID	Idaho	2
Clitocybe	deceptiva		ID	Valley	2
Clitocybe	deceptiva		WA	Lewis	1
Clitocybe	epigaea		ID	Adams	1
Clitocybe	epigaea		ID	Valley	2
Clitocybe	gruberi		ID	Latah	1
Clitocybe	multicarpa		ID	Idaho	1
Clitocybe	multicarpa		ID	Valley	7
Clitocybe	pallidipes		ID	Valley	1
Clitocybe	payettensis		ID	Valley	1
Clitocybe	profundisca		ID	Bonner	1
Clitocybe	profundisca		D	Valley	2
Clitocybe	pseudomarginella		D	Bonner	1
xocybe	pseudomarginella		D	Valley	6
Clitocybe	pseudomarginella		NA	Lewis	1
xocybe	pungens		D	Valley	2
xocybe	varispora		D	Valley	1
Coprinus	deceptiva		D	Idaho	1
Coprinus	eurysporus		OR	Hood River	1
Coprinus	pseudomarginella		D	Idaho	1
Cystoderma	wbpurpureum		OR	Wasco-Clack	1
rlygrophorus	albicarneus		OR	Hood River	1
Hygrophorus	albicarneus		OR	Klamath	2
Hygrophorus	albiflavus		OR	Hood River	1
Hypholoma	despersum	<i>far.</i> idahoense	ID	Valley	1
Lentinellus	truebloodii		ID	Owyhee	1
Lyophyllum	brunellae		WA	Klickiati	1
Lyophyllum	canescens		ID	Bonner	1
Lyophyllum	chamaeleon		OR	Wasco	1
Lyophyllum	chondrocephalum		WA	Lewis	1
Lyophyllum	fistulosum		ID	Valley	1
Lyophyllum	gracile		OR	Wasco	1
Lyophyllum	investitum		OR	Wasco	1
Lyophyllum	leptosarc		ID	Valley	1
Omphalina	chrysophylla	<i>far.</i> salmonispora	ID	Bonner	1
Omphalina	chrysophylla	<i>far.</i> salmonispora	ID	Idaho	2
Psathyrella	abieticola		ID	Valley	1
Psathyrella	acuticystis		ID	Boundary	2

Appendix 5. Columbia Basin Fungi of Special Concern in the University of Michigan Herbarium (MICH)

Saprobic Fungi

Gilled Mushrooms

Genus	Species	Infraspecies	State	County	Occurrences
Psathyrella	annulata		ID	Bonner	1
Psathyrella	argentata		ID	Bonner	1
Psathyrella	boulderensis		ID	Valley	3
Psathyrella	communis		ID	Bonner	1
Psathyrella	communis		ID	Boundary	1
Psathyrella	crassulistipes		ID	Bonner	4
Psathyrella	ellenae		ID	Valley	1
Psathyrella	equina		ID	Valley	1
Psathyrella	fragrans		ID	Valley	1
Psathyrella	fulva		ID	Bonner	1
Psathyrella	fulvoumbrina		ID	Owyhee	5
Psathyrella	fuscospora		ID	Valley	1
Psathyrella	gruberi		OR	Hood River	1
Psathyrella	idahoensis		ID	Idaho	1
Psathyrella	lepidotooides		ID	Bonner	1
Psathyrella	mesocystis		ID	Valley	1
Psathyrella	monticola		ID	Adams	1
Psathyrella	mucrocystis		ID	Valley	1
Psathyrella	naucorioides		ID	Bonner	2
Psathyrella	naucorioides		ID	Boundary	1
Psathyrella	nezpercii		ID	Bonner	1
Psathyrella	nezpercii		ID	Idaho	2
Psathyrella	nezpercii		ID	Owyhee	1
Psathyrella	oregonensis		OR	Hood River	1
Psathyrella	owyheensis		ID	Owyhee	1
Psathyrella	pallida		ID	Idaho	1
Psathyrella	payettensis		ID	Idaho	1
Psathyrella	populorum		ID	Owyhee	1
Psathyrella	praetenuis		ID	Bonner	1
Psathyrella	pseudolimicola		ID	Idaho	1
Psathyrella	pseudotrepida		ID	Bonner	2
Psathyrella	pseudotrepida		ID	Idaho	1
Psathyrella	pseudotrepida		ID	Valley	1
Psathyrella	psilocyboides		ID	Adams	2
Psathyrella	quercicola		OR	Jackson	1
Psathyrella	roothaanensis		ID	Boundary	1
Psathyrella	rufogrisea	var. bonnerensis	ID	Bonner	1
Psathyrella	rufogrisea	var. riparia	ID	Valley	1
Psathyrella	salictaria		ID	Idaho	1
Psathyrella	stuntzii		WA	Chelan	1
Psathyrella	stuntzii		WA	Yakima	1
Psathyrella	subalpina		WA	Lewis	3
Psathyrella	subcaespitosa		OR	Wasco	1
Psathyrella	sublongipes		ID	Idaho	1
Psathyrella	subnuda	var. velosa	ID	Bonner	1
Psathyrella	subradicata		ID	Owyhee	1
Psathyrella	uskensis		WA	Pend Oreille	1
Psathyrella	variata		ID	Bonner	1
Psathyrella	vesiculocystis		ID	Idaho	1
Psathyrella	wapinitaensis		ID	Bonner	1
Psathyrella	wapinitaensis		ID	Idaho	1
Psathyrella	wapinitaensis		ID	Valley	1

Appendix 5. Columbia Basin Fungi of Special Concern in the University of Michigan Herbarium (MICH)

Saprobic Fungi

Gilled Mushrooms

Genus	Species	Infraspecies	I State	County	Occurrences
Psathyrella	wapinitaensis		OR	Wasco	1
Psathyrella	warrenensis		ID	Idaho	1
Psilocybe	subborealis		ID	Boundary	1
Tricholomopsis	cystidiosum		OR	Deschutes	1
Tricholomopsis	fallax		ID	Bonner	1
Tricholomopsis	fallax		ID	Valley	8
Xeromphalina	brunneola		ID	Bonner	5
Xeromphalina	brunneola		ID	Valley	2

Puffballs

Genus	Species	Infraspecies	State	County	Occurrences
Abstoma	citrina		ID	Owyhee	1
Abstoma	plumbea		OR	Malheur	1
Abstoma	reticulatum		ID	?	1
Bovista	aestivalis		ID	Bonner	1
Bovista	californica		ID	Elmore	1
Bovista	dakotensis		ID	Owyhee	2
Bovista	leucoderma		ID	Owyhee	4
Bovista	leucoderma		OR	Malheur	4
Bovista	minor		ID	Owyhee	2
Bovista	minor		OR	Malheur	1
Bovistella	leucoderma		OR	Malheur	1
Calbovista	subsculpta	var. fumosa	ID	Bonner	1
Calvatia	bovista		ID	Boise	1
Calvatia	bovsta		OR	Malheur	1
Calvatia	bovista	var. bovista	ID	Idaho	1
Calvatia	bovista	var. bovista	ID	Owyhee	4
Calvatia	candida		ID	Elmore	1
Calvatia	candida		ID	Owyhee	2
Calvatia	cretacea		ID	Valley	1
Calvatia	excipuliformis		ID	Owyhee	1
Calvatia	fragilis		ID	Elmore	1
Calvatia	fragilis		ID	Owyhee	2
Calvatia	fragilis		OR	Malheur	2
Calvatia	fumosa	var. idahoensis	ID	Adams	1
Calvatia	lloydii		ID	Elmore	1
Calvatia	lloydii		ID	Owyhee	3
Calvatia	lycoperdoides		ID	Boise	1
Calvatia	lycoperdoides		ID	Owyhee	1
Calvatia	lycoperdoides		ID	Valley	6
Calvatia	owyheensis		ID	Owyhee	4
Calvatia	owyheensis		ID	Valley	1
Calvatia	pallida		ID	Boise	1
Calvatia	pallida		ID	Owyhee	4
Calvatia	rubro-flava		ID	Valley	1
Calvatia	sculpta		ID	Boise	1
Calvatia	sculpta		ID	Owyhee	2
Calvatia	sculpta		ID	Valley	1
Calvatia	sculpta		OR	Wasco	1
Calvatia	sculpta		WA	Yakima	1

Appendix 5. Columbia Basin Fungi of Special Concern in the University of Michigan Herbarium (MICH)

Saprobic Fungi

Puffballs

Genus	Species	Infraspecies	State	County	Occurrences
Calvatia	tatrensis		ID	Owyhee	1
Calvatia	utriformis		ID	Owyhee	4
Calvatia	utriformis		OR	Malheur	1
Calvatia	utriformis	var. <i>utriformis</i>	ID	Owyhee	2
Endoptychum	depressum		ID	Custer	1
Endoptychum	depressum		ID	Idaho	1
Endoptychum	depressum		ID	Valley	3
Montagnea	candollei		OR	Morrow	1
Podaxis	pistillaris		ID	?	1
Podaxis	pistillaris		ID	Owyhee	1
Weraroa	coprophila		ID	Valley	1
Weraroa	nivalis		ID	B o n n e r	1

Resupinate

Genus	Species	Infraspecies	State	County	Occurrences
Peniophora	decorticans		WA	Klickiiat	1

Tooth Fungi

Genus	Species	Infraspecies	State	County	Occurrences
Hydnnum	indurescens		WA	Chelan	1